

California Marine Life Protection Act Initiative
Statewide Interests Group
Draft Meeting Agenda
(revised December 3, 2007)

Friday, December 7, 2007 at 3:00 p.m.

Via conference call

Meeting Objectives

- *Review charge of the MLPA Statewide Interests Group (SIG) and confirm operating protocols*
- *Members of the SIG, MLPA staff and MLPA Blue Ribbon Task Force (BRTF) introduce themselves to one another and become better acquainted*
- *Debrief November BRTF and SAT meetings and stakeholder involvement, including the stakeholder panels*
- *Discuss stakeholder presentations for future meetings*
- *Discuss proposed January or February workshops for updating the public on draft proposals*
- *Discuss overall public involvement in the MLPA Initiative process*
- *Discuss frequency and timing of future SIG conference calls*
- *Summarize next steps*

Meeting Agenda

1. Welcome, roll call, and logistics for conference call
 - Susan Golding, Chair, BRTF (Attachment 1)
 - Ken Wiseman, Executive Director, MLPA Initiative (Attachment 2)
 - Scott McCreary and Eric Poncelet, Co-Facilitators, CONCUR
2. Introductions (Attachment 3)
 - name, organization, constituency
 - past and/or current involvement with MLPA
3. Charge to the Statewide Interests Group (Attachment 4)
4. Stakeholder involvement at November meetings (SAT and BRTF)
 - what went well
 - suggestions for changes
5. January or February public workshops to review draft MPA proposals
 - timing and structure of workshops
6. Overall public involvement in the MLPA Initiative
 - strategy for stakeholder and public participation (Attachment 5)
 - public comments on the MLPA website
7. Future SIG meetings and next steps
 - frequency, timing of meetings
 - how well did this conference call work?
 - in person meetings?
 - dates and next steps

Attachments

1. Members of the MLPA Blue Ribbon Task Force
2. List of MLPA staff
3. Members of the MLPA Statewide Interests Group
4. Charter of the MLPA Statewide Interests Group
5. *Strategy for Stakeholder and Interested Public Participation* (Revised August 23, 2007)
6. Members of the MLPA Master Plan Science Advisory Team
7. Members of the MLPA North Central Coast Regional Stakeholder Group

Key Outcomes Memorandum

Date: December 20, 2007

To: Members, MLPA Statewide Interests Group (SIG)

From: Scott McCreary and Eric Poncelet, CONCUR, Inc.

Re: Key Outcomes Memorandum – December 7, 2007 SIG Meeting

cc: BRTF members, MLPA Initiative Staff, and California Department of Fish and Game MLPA Staff

Participation and Materials

The following Marine Life Protection Act (MLPA) Initiative Statewide Interests Group (SIG) members participated in the December 7, 2007 conference call: Kevin Cooper, Harold Davis, Henry Fastenau, Kaitilin Gaffney, Vern Goerhing, Joel Greenberg, Angela Haren, Bill James, Ken Kurtis, James Liu, Tom Raftican, Roger Thomas, Shelly Walther, and Kate Wing.

Chair Susan Golding and Don Benninghoven participated as members of the MLPA Blue Ribbon Task Force (BRTF).

Ken Wiseman and Melissa Miller-Henson (MLPA Initiative) and John Ugoretz (California Department of Fish and Game, DFG) participated on behalf of MLPA Initiative staff (collectively known as “I-Team”). Scott McCreary and Eric Poncelet (CONCUR, Inc.) facilitated the conference call.

Meeting materials may be found on the MLPA website at:
http://www.dfg.ca.gov/mlpa/meeting_120707.asp

Key Outcomes

SIG members reviewed their charge. SIG members confirmed their charge, which is to consult with the chair and staff to the BRTF and provide a forum for enhanced communication between the BRTF and stakeholders. Key topics include the MLPA Initiative and statewide policy issues, and outreach to constituent groups regarding opportunities for involvement in the MLPA Initiative.

SIG members provided feedback on the November 13, 2007 MLPA Master Plan Science Advisory Team (SAT) meeting and November 19-20, 2007 BRTF meeting. Key comments included:

- The SAT meeting would have benefited from improved time management. Some key agenda items (e.g., parallel processes) were not discussed due to a shortage of time. I-Team staff confirmed that an additional SAT meeting has been scheduled for January 8, 2008 to focus predominantly on the topic of modeling. I-Team staff also indicated that a new MLPA Initiative schedule has been developed for 2008 to help address time

compression concerns. The revised schedule extends the previous schedule by about a month and was provided in the meeting materials packet.

- The stakeholder panels that took place at the SAT and BRTF meetings were helpful. Similar stakeholder panel discussions should be scheduled for future SAT and BRTF meetings.
- SIG members requested copies of SAT responses to science questions posed by members of the MLPA North Central Coast Regional Stakeholder Group (NCCRSG).
- One SIG member expressed concern with the rigor and validity of the SAT's current methodology for evaluating MPA proposals. I-Team staff clarified that, while the SAT's methodology and information sources are considered to constitute the "best available science" and are largely consistent with what was used in the MLPA central coast process, the SAT is still open to discussing and refining its methodology in the context of SAT meetings. Staff noted that an adaptive management process is also in place to address needed changes.

SIG members discussed strategy for upcoming public workshops. I-Team staff announced its intent to convene three public workshops on February 4-6, 2008 to support the MPA planning process. SIG members noted that disinformation still exists regarding the MLPA initiative and strongly supported the idea of public workshops at this juncture. SIG members offered the following additional input:

- The public needs advanced notice about the purpose and timing of the workshops. I-Team staff also needs to clearly indicate how public input will be incorporated into the MLPA process.
- The workshops should include a concise primer on the MLPA and the SAT guidelines. I-Team staff should also provide guidance to help members of the public frame their comments so that this input to the NCCRSG is as relevant and useful as possible.
- It would be helpful to prepare a visual timeline of the MLPA process (using flow charts) so the public can better understand where the public workshops fit into the broader process. This timeline should be distributed with the announcements for the public workshops.

SIG members reviewed overall public involvement in the MLPA Initiative. Key comments and advice included:

- The document entitled "Strategy for Stakeholder and Interested Public Participations" should be made broadly available to interested stakeholders and the general public early on in the process.
- SIG members expressed some concern that public comments were not being posted on the MLPA Initiative website in a timely fashion. I-Team staff indicated that a new staff member is assisting.

Next SIG Meeting – January 17, 2008 (2:00 – 4:00 PM)

I-Team and SIG members acknowledged that, in general, the intent is to convene SIG meetings at an interval about two weeks after BRTF meetings. SIG members also requested that its next meeting be held shortly after the next SAT meeting.

As such, the next SIG conference call is now scheduled for Thursday, January 17, 2008. The call will run from 2:00 – 4:00 PM.

Suggested agenda items for the next SIG meeting include:

- Provide update on the next phase of the MLPA Initiative process (MLPA South Coast Study Region). Include information on anticipated timeline, approach to public outreach, and approach to data collection.
- Provide update on SAT discussions on parallel processes (i.e., modeling).
- Discuss upcoming February 4-6, 2008 public workshops and other future public involvement opportunities.

SIG members confirmed that future meetings will generally take place by conference call, although the option exists to hold in-person meetings, if needed. In general, SIG members expressed a preference to meet in the afternoons and on Thursdays, if possible, but to avoid California Fish and Game Commission meetings. SIG members also asked for the opportunity to provide input on future SIG meeting agendas.

Next Steps

1. Staff to provide SIG members with SAT responses to science questions. These will be distributed along with this key outcomes memorandum.
2. All SIG members are invited to attend the January 8, 2008 SAT meeting scheduled from approximately 9:30 AM to 5:30 PM at the San Francisco International Airport.
3. Staff to prepare for the next SIG meeting on January 17, 2008 (2:00-4:00 PM) and to provide SIG members with a draft agenda in advance of the meeting for review.
4. Staff to begin preparing for the February 4-6, 2008 public workshops and to develop a preliminary draft agenda to be available for brief review by the SIG at its January 17, 2008 meeting.

California MLPA Master Plan Science Advisory Team
Responses to Science Questions Posed by the
NCCRSR at its July 10-11, 2007 Meeting
Revised November 20, 2007

The following are responses of the MLPA Master Plan Science Advisory Team (SAT) to questions posed by the MLPA North Central Coast Regional Stakeholder Group (NCCRSR) at its July 10-11, 2007 meeting. Draft responses to questions were prepared by SAT work groups and then approved by the SAT.

1. Review of the measurability of the draft regional objectives (John Ugoretz, Mark Carr, Sarah Allen, Karina Nielson)

Response: At the September 17, 2007 SAT meeting the SAT approved of the NCCRSR's provisional goals and objectives since fundamentally they are measurable, though some would be easier to measure than others.

[During the central coast process a Baseline Science Management Panel considered the measurability for each objective and identified monitoring activities that could occur. A similar process could be conducted for the NCCSR goals and objectives during the development of a monitoring plan for the NCCSR]

2. What are the key and/or unique habitats for this region? (in relation to Goal 4, Objective 1)

This response was adopted by the SAT at its September 17, 2007 meeting.

Response: For Goal 4, Objective1, the NCCRSR asked the SAT to identify "unique habitats" in the study region. For purposes of representing unique habitats with important marine resources in the region, the stakeholders should include estuaries, the intertidal zone at the Farallon Islands, and subtidal waters (including the water column and benthic habitats) around the Farallon Islands.

While estuaries are found along the California coast, the north central coast study region has about 20 square miles of estuaries of several different types. Tomales Bay, for example, is relatively unique due to its long narrow shape (originating along a fault zone), protected waters and varied habitats (deep waters, extensive eelgrass, and mudflats).

The Farallons are truly unique as offshore islands surrounded by deepwater habitat, located offshore of the outlet of San Francisco Bay, and in an area bathed by nutrient-rich upwelled water from the Point Arena-Point Reyes upwelling system. They contain a globally significant and unique combination of marine mammal and seabird breeding colonies and have intertidal communities that are distinctly different than on the mainland.

In addition to these two habitats identified as unique and warranting representation in marine protected areas, there are two other features of the region worth considering during MPA planning. First, it should be recognized that intertidal and subtidal habitats north and south of Point Reyes have different biological assemblages (there's a biogeographic break

at Point Reyes). Secondly, the freshwater plumes in the region are important for their influence on nearshore communities and for their role as migratory corridors for anadromous fish (salmon, steelhead, sturgeon). The output of San Francisco Bay at the Golden Gate is the largest outflow of estuarine freshwater in the entire state, draining 40% of California including the Sacramento and San Joaquin Rivers.

References

- Dickey, K. 2003. Pieces of a puzzle: Biogeography of southeast Farallon Island, California. *J. Phycol.* 39, S1: 13.
- Ford, R.G. and M.L. Bonnell. 1998. Marine protected areas and biological distributional data: large and small scale perspectives. Taking a look at California's ocean resources: an agenda for the future 1: 259.
- Hanni, K.D., D.J. Long, R.E. Jones, P. Pyle, and L.E. Morgan. 1997. Sightings and strandings of Guadalupe fur seals in central and northern California, 1988-1995. *J. Mammalogy* 78: 684-690.
- Long, D.J. 1992. Confirmation of the northern range of the snubnose sculpin (*Orthonopias triacis*). *Calif. Fish Game* 78: 160-162.
- Roletto, J., N. Cosentino, D.A. Osorio, and E. Ueber. 2000. Rocky intertidal communities at the Farallon islands. 2000. Proceedings of the fifth California islands symposium: 359-362.
- Steger, J.M., F.B. Schwing, C.A. Collins, L.K. Rosenfeld, N. Garfield, and E. Gezgin. 2000. The circulation and water masses in the Gulf of the Farallones. *Deep-Sea Research II* 47: 907-946.

3. What are the species most likely to benefit in the MLPA North Central Coast Study Region? (Mark Carr, John Ugoretz, Gerry McChesney, Pete Raimondi)

Response: The list of species likely to benefit in the MLPA North Central Coast Study Region was approved by the SAT at its October 1, 2007 meeting. The SAT may choose to make further additions and edits to this list in the future. This list can be found in the North Central Coast Regional Profile.

4. Do the existing depth zones need to be split up or revised (esp. 30-100 meters) given that we have only minimal area >100m? (Stakeholders noted that there's a little area as deep as 116m). Do they need to represent depths >100m? (Mark Carr, John Ugoretz, Pete Raimondi)

This response was adopted by the SAT at its September 17, 2007 meeting.

Response: The SAT recommends that the depths between 30 and 100 meters be considered one depth zone in terms of replication and spacing analyses for this study region. This reaffirms the SAT guideline that MPAs should be designed to extend from shallow to deep water to encompass the full range of depth related migrations many species make throughout their life cycle. Ideally, most MPAs would span across the full 30-

100 m range, but in certain locations and to meet other goals, individual MPAs may only encompass a portion of this range. Given the differences in preferred depth ranges of various species, analyses of benefits to individual species or species groups should take into account these preferred depths. As with other habitats that are not present or very rare in the region, depths greater than 100 meters would not be considered in habitat analyses.

Background: Presumably, consideration for splitting the 30-100 meter depth range into finer depth strata is motivated by a concern that MPAs located within that depth range, but not across the entire depth range, would fail to represent some species within the range. For example, if the depth distribution of one or more species ranged from 30-60 m depth and an MPA was proposed that extended from 60 m and deeper, then that MPA would not include and provide protection for those shallower distributed species. There are two components to the response to this question:

1. Are there species whose depth distribution includes some but not all of the 30-100m range? And, if so,
2. What are the implications for redefining depth strata on the design of MPAs?

The SAT reviewed literature on the depth distribution of some species that occur in the 30-100m depth range of the MLPA North Central Coast Study Region to determine if there is evidence of ranges that span only a portion of the 30-100m range. This review focused on marine fishes and was generated from two key resources. The depth distribution of fish assemblages illustrated in Figure 1 is from NOAA's National Center for Coastal Monitoring and Assessment (CMA) biogeographic assessment of the three central coast national marine sanctuaries¹. The depth distributions of hard-bottom fishes illustrated in Figure 2 is largely based on rockfishes from species accounts in The Rockfishes of the Northeast Pacific². A parallel synthesis of soft-bottom fish depth distributions was also conducted and largely reinforced the results and conclusions generated from the other syntheses (Figure 3).

¹ Information on how these assemblages were defined is available at:
http://ccmaserver.nos.noaa.gov/products/biogeography/canms_cd/htm/fish/assemblage.htm.

² Love, M.S., M. Yoklavich, and L. Thorsteinson. 2002. University of California Press, Berkeley, California, USA
405 pages

Figure 1. Depth ranges of finfish species

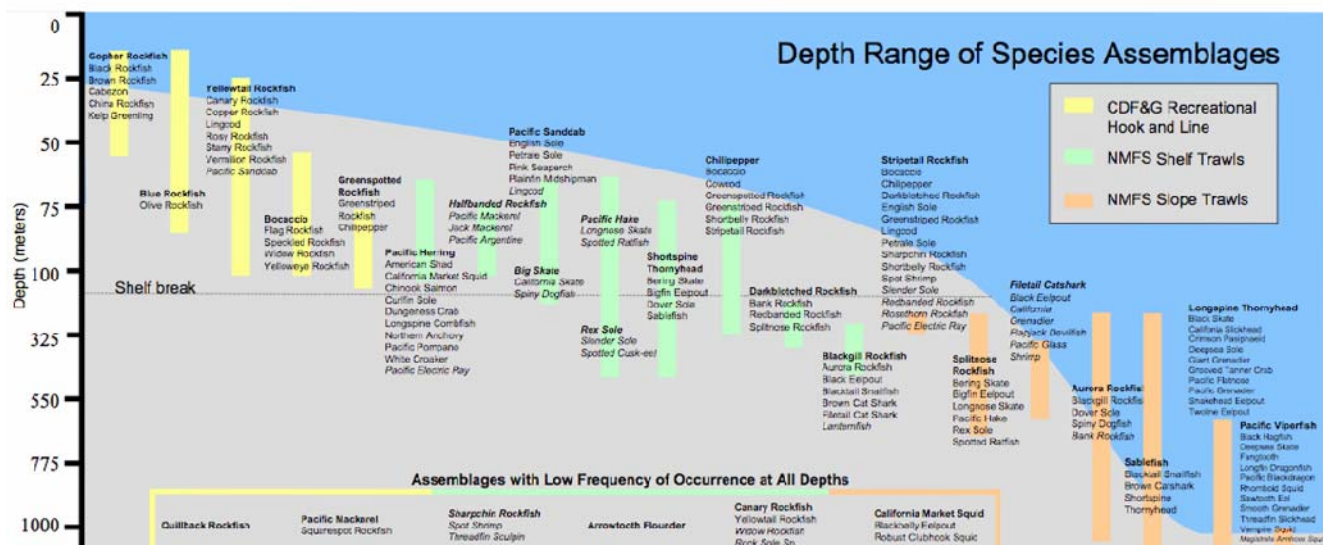


Figure 2. Depth distributions of hard-bottom fish species.

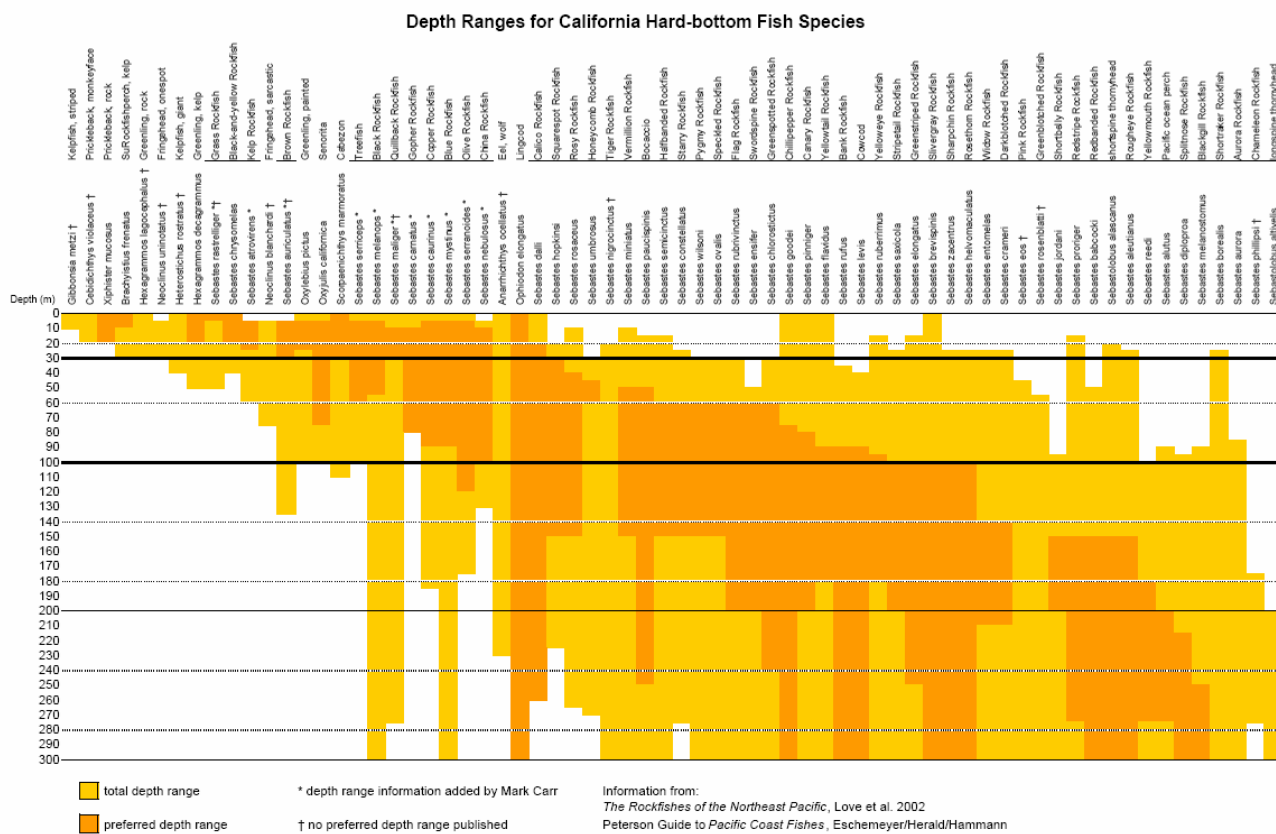
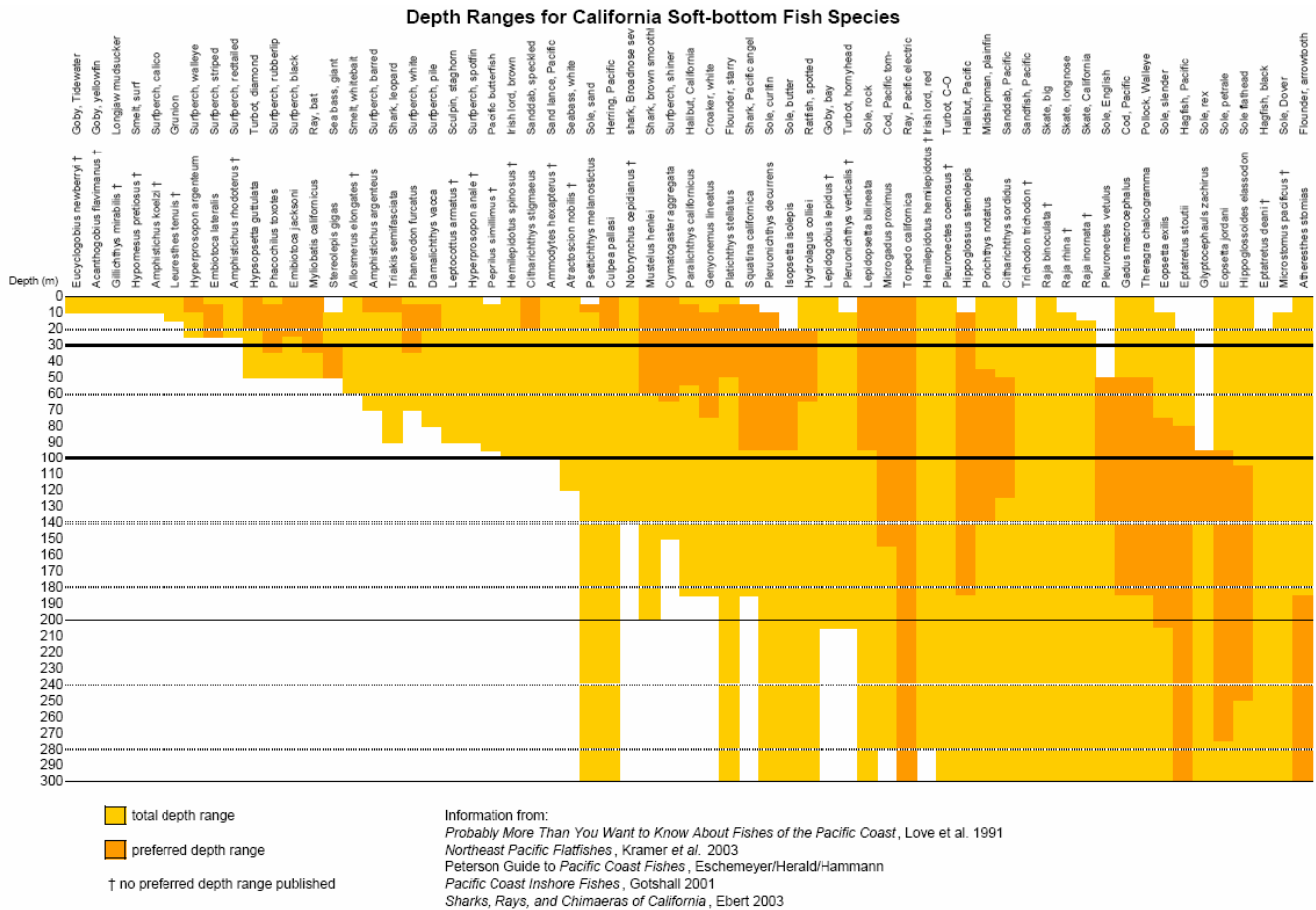


Figure 3. Depth distributions of soft-bottom fish species.



It is clear from depth distributions of entire fish assemblages (Figure 1; bocaccio, greenspotted rockfish, Pacific herring, halfbanded rockfish, Pacific sanddab, and big skate) and the *preferred* (dark orange) depth range of rockfishes (Figure 2; *Sebastes serriceps*, *S. melanops*, *S. carnatus*, and many species including and to the right of *S. miniatus*) that certain species and assemblages occur within only a portion of the 30-100 m depth range. Thus, an MPA that includes only a portion of the 30-100 m depth range may not include species that otherwise occur within the depth range. This analysis did not consider benthic invertebrates, which may exhibit similar discontinuous distributions across this depth range. It is also notable that the upper and lower depth ranges of many of these species occurs around 60 m depth.

There are two implications of these results. First, the 30-100 m depth range could be divided into separate 30-60 and 60-100 m depth strata, thereby assuring that each of these strata and their corresponding species and assemblages are represented in MPAs. Alternatively, MPAs could be designed to encompass the entire 30-100m depth range. Both guidelines would help meet the goal of representative biodiversity within this range. Of the two alternatives, the latter is the most scientifically sound for the following reason. Separate

from including representative species, the design of MPAs needs to consider depth-related movement patterns of marine species. There are a number of marine fishes that move across broad depth ranges during their adult phase, especially in relation to annual reproductive migrations into shallower depths (e.g., lingcod). Other species known to move across depth ranges as adults include olive, yellowtail, canary and vermillion rockfishes (Rick Starr, pers. comm.). Indeed, recognition of this behavior led the central coast SAT to recommend the guideline that MPAs be designed to extend from the intertidal to the boundary of state waters to encompass the depth-related movements of various species across the range of depths in state waters. Overall, the SAT would interpret these data to recommend that MPAs in the 30-100 m depth range encompass as much of this depth range as possible, thereby protecting the collective number of species that occur there and accommodate their depth-related migrations.

There is very little area in state waters that is deeper than 100m and it extends only a small range of depth (100-116m depth). This indicates that waters deeper than 100 m within state waters would be such an insignificant portion of the range of most species that it would not be an important guiding criterion for MPA location.

5. What is the influence of offshore habitats (e.g. Bodega canyon) on state waters?
(Sarah Allen, Mark Carr, Dominic Gregorio)

This response was adopted by the SAT at its November 13, 2007 meeting.

Draft response: The SAT was unable to find any scientific information that directly addresses the influence of offshore habitats on the ecological communities in state waters; however, it is possible that offshore features influence the biological communities in state waters in several ways.

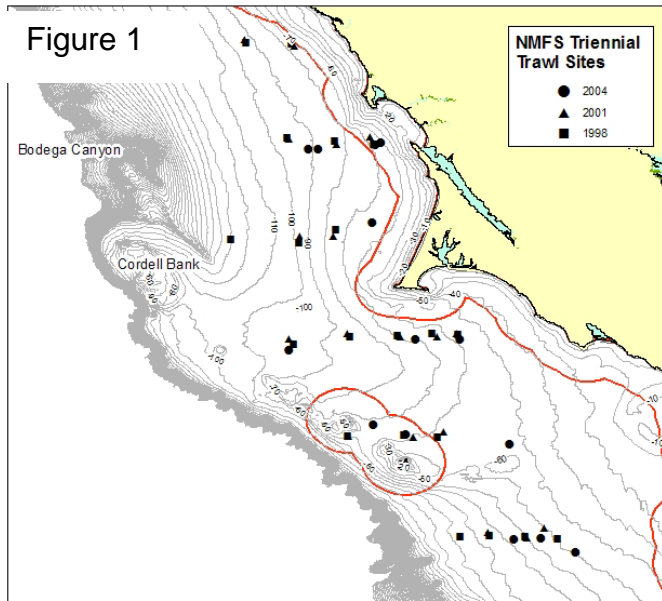
Upwelling

Bodega Canyon may be an offshore upwelling center, but given its distance from shore (~20 mi), it is unlikely that upwelled water from Bodega Canyon has any noticeable impact on state waters.

The SAT examined the National Marine Fisheries Service Triennial Trawl Survey data to see whether the abundance or biodiversity of mid-depth (<100m) shelf species varied with proximity to Bodega Canyon and a potential source of productive upwelled water. Unfortunately, the trawl samples were distributed too broadly to assess any specific influences of Bodega Canyon (see figure 1). Also large temporal variation in the biodiversity and abundance of species in the trawls made it impossible to discern any spatial variations.

In general, upwelling along the shelf break can cause algal blooms and enhanced productivity, however these events are transient and not known to originate from any specific features, therefore it is impossible to predict their impacts on state waters and how these impacts may vary along the coast.

Figure 2



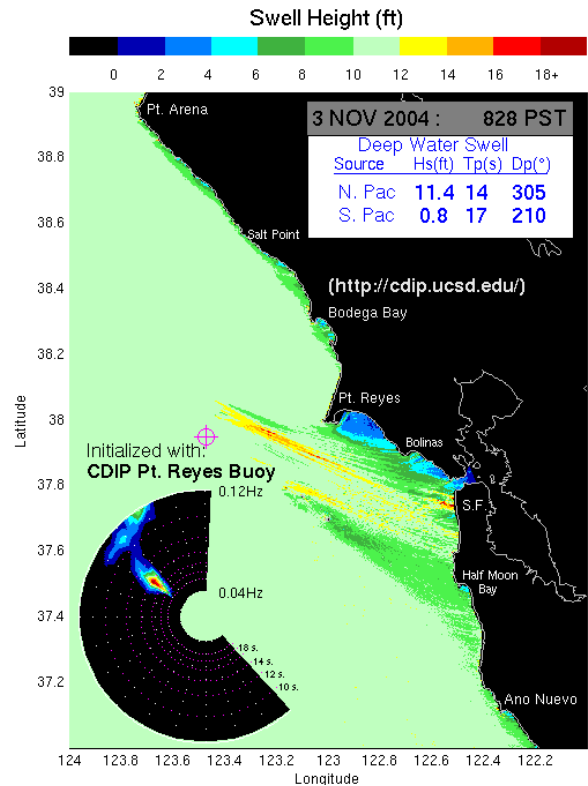
Wave Energy

Offshore bathymetric features can influence the patterns of swell and wave energy along the nearby coastline. Cordell Bank and the potato patch (bar at the mouth of San Francisco Bay) are known to focus wave energy, increasing the height of waves where they encounter the coast (see figure 2). The location of the enhanced wave energy and the magnitude of this effect vary with swell period and direction, making specific predictions about impacts difficult. Elsewhere in California, swell environment has been shown to be an important factor influencing assemblages of nearshore fishes, so it is possible that variations in swell energy caused by Cordell Bank and the potato patch could influence ecological communities in state waters, but the effect has not been documented.

Population Connectivity

Cordell Bank is known to be an important habitat for deeper water reef species including rockfish. Larval dispersal from the bank to nearshore waters is likely, however the distribution of this dispersal and its impact on nearshore communities is currently unknown.

The Coastal Data Information Program
 @ Scripps Institution of Oceanography
 CA Dept. of Boating and Waterways – U.S. Army Corps of Engin



6. What is the appropriate size/seasonality for buffers to prevent disturbance to bird/mammal colonies? (Sarah Allen, Gerry McChesney)

This response was adopted by the SAT at its September 17, 2007 meeting.

Response: BUFFER DISTANCES TO PREVENT BOAT DISTURBANCE TO SEABIRD AND MARINE MAMMAL COLONIES

Seabirds

Species of seabirds differ in how prone they are to disturbance by boats. Those that nest and roost on the surface are more sensitive to disturbance than those nesting in underground burrows. In particular, species nesting or roosting in dense aggregations tend to most sensitive to disturbance because disturbance events can affect larger numbers of birds. The species most sensitive to disturbance include the common murre, Brandt's cormorant, double-crested cormorant, and pelagic cormorant. Pigeon guillemots, which nests underground, congregate in large numbers on the water and in intertidal areas adjacent to nesting areas and are highly prone to flush (fly away) when boats approach too closely.

Few studies have examined boat disturbance distances at seabird colonies. In a study on seabird disturbance at the Three Arch Rocks National Wildlife in coastal Oregon, 98% of boat disturbances occurred within 500 feet of the colony (Riemer and Brown 1997). Using data from that study, a 500 foot closure was established around the nesting rocks. This closure resulted in a significant decrease in disturbance to wildlife.

At certain colonies along the central California coast, the U.S. Fish and Wildlife Service records boat and other disturbances to seabirds with a focus on the common murre. Observations are separated into events causing birds to become visibly frightened or agitated and those causing birds to move or flush from the colony. From these observations, 80% of events causing alarm and 90% of events causing flushing occurred within 200 meters (about 650 feet) of nesting colonies (Table 1). Ninety percent of agitation and 100% of flushing events occurred within 400 meters (1,300 feet). However, other observations have shown birds flushing at distances over 400 meters, especially outside the breeding season when birds are more prone to flush.

Based on these data, the 500 foot closure used at Three Arch Rocks in Oregon would not alleviate all disturbances to seabirds. A buffer zone about 400 meters would be needed to nearly eliminate flushing events, and about 500 meters would be needed to nearly eliminate all detectable disturbance events.

NOTE: These data do not include other factors that could cause substantial disturbance to seabirds, such as bright lights used on some boats on night, or loud noises.

Table 1. Cumulative percentages in 50 meter (164 ft.) distance zones of boat disturbances to seabird breeding colonies along the central California coast, 1996-2006 (N = 102 events). Data are shown separately for events causing alarm behaviors and those causing flushing behaviors. (U.S. Fish and Wildlife Service, unpublished data).

<i>Distance (m)</i>	<i>Distance (ft.)</i>	<i>Alarm Behaviors Cumulative %</i>	<i>Flushing Behaviors Cumulative %</i>
0-50	0-164	46.9	66.7
50-100	164-328	65.4	76.2
100-150	328-492	67.9	76.2
150-200	492-656	80.2	90.5
200-250	656-820	85.2	95.2
250-300	820-984	91.4	95.2
300-350	984-1148	91.4	95.2
350-400	1148-1312	95.1	100.0
400-450	1312-1476	95.1	100.0
450-500	1476-1640	97.5	100.0
>500	>1640	100.0	100.0

Marine Mammals

The National Marine Fisheries Service recommends a buffer zone of 300 feet around marine mammal colonies to prevent disturbance; these recommendations are on the NMFS website: http://www.oceanservice.noaa.gov/outreach/pdfs/wildlife_watching_handbook.pdf

Additionally, in a study of harbor seals in Bolinas Lagoon in the 1970s, most seals were disturbed at around 300 feet (Allen et al. 1985). At Three Arch Rocks National Wildlife Refuge, Oregon, Riemer and Brown (1997) reported that nearly all disturbances to wildlife occurred within 500 feet of the colony.

Literature Cited

- Allen, S. G., D. G. Ainley, G. W. Page, and C. A. Ribic. 1985. The effect of disturbance on harbor seal haul out patterns at Bolinas Lagoon, California, 1978-1979. U. S. Fishery Bull. 82:493-500.
- Riemer, S. D., and R. F. Brown. 1997. Monitoring human-wildlife interactions and disturbance of seabirds and pinnipeds at Three Arch Rocks National Wildlife Refuge, 1993-1994. Unpublished Report, Oregon Department of Fish and Wildlife, Wildlife Diversity Program, Marine Region, Newport, Oregon, Technical Report #97-6-01.
- U.S. Fish and Wildlife Service, unpublished data. San Francisco Bay National Wildlife Refuge Complex, Common Murre Restoration Project. Contact: Gerry McChesney

7. Can the SAT review and comment on the list of important features in the draft regional profile (section 3.3)? (Steve Morgan and John Largier)

This response was adopted by the SAT at its October 1, 2007 meeting.

Response: Spatial data are available to begin identifying specific locations in the study region that have high biodiversity significance based on the guidelines provided in the MLPA Master Plan Framework (CDFG 2005) and results of regional scientific research and mapping efforts. Specific locations can be identified using existing maps, by overlaying relevant data layers in the Internet Mapping Service site, or conducting more sophisticated GIS analysis. The following is a partial list of types of areas that have regional biodiversity significance:

- Areas where numerous habitats are found in close proximity and areas with unique combinations of habitats
- Large open estuaries (e.g. Tomales Bay, Drakes Estero, Bolinas Lagoon) with eelgrass beds, tidal flats, and coastal marsh (Maps 2a-2f)
- Stream outlets and estuaries with presence of coho, Chinook, or steelhead populations (Maps 6a and 6b)
- Marine areas off headlands, especially those with kelp forests.
- Marine areas which offer residence adjacent to upwelling centers, especially those with kelp forests and rocky reefs.
- Large kelp beds (Maps 2a-2f) and nearshore rocky reefs (Maps 3a-3f).
- Areas of high bathymetric complexity which provide topographic relief and a variety of habitats in close proximity
- Rocky substrata in all depth zones, since rocky habitat is much less common than soft-bottom habitat and is important for depleted rockfish species (Maps 3a-3f)
- Rocky intertidal shores, especially wave-cut rocky platforms (which provide habitat at diverse tidal elevations), boulder fields, and rare sheltered rocky shores (Maps 2a-2f)
- Seabird colonies and marine mammal rookeries and haulouts (Maps 5a-5f)
- Areas of high fish or seabird diversity and/or density (Maps 5a-5f, 6a-6b, and 7a-7e).
- Offshore islands

8. Are there biological breaks in species distribution with in the study region if so where and which are important to consider? (Steve Gaines, Pete Raimondi, Mark Carr)

This response was adopted by the SAT at its September 17, 2007 meeting.

Response: There are two levels of biogeographic patterns of species and biological communities relevant to the MLPA process; major “biogeographic regions” and smaller “bioregions”. Biogeographic regions are largely defined by species range boundaries common to many species. For example, Point Conception is a well recognized

biogeographic boundary that separates two biogeographic regions to the south and north. These biogeographic regions are described in detail in the previous SAT's description provided in the MLPA master plan. Biologically-based subregions within these biogeographic regions are referred to as "bioregions". These are regions that are characterized by differences in species composition and community structure within habitat types or ecosystems (e.g., within the rocky intertidal, within shallow hard-bottom habitats). For example, in the MLPA Central Coast Study Region, the SAT recognized differences in community structure of rocky intertidal and shallow rocky reef communities to the north and south of Monterey Bay. Often, these subregions and the variation in communities they are based upon are closely related to differences in habitat structure. For example, the different shallow reef communities north and south of Monterey Bay correspond with sedimentary and granitic substrata, respectively. The purpose for defining these subregions is to recognize that MPAs in one subregion may not include the species composition and community structure of an ecosystem in other subregions.

Within the MLPA North Central Coast Study Region, there are largely three subregions. First, rocky intertidal communities along the mainland from Pigeon Point to Point Reyes are different from those at and north of the Point Reyes headland. Specifically, the boundary between these two bioregions generally corresponds with a change in substratum type that occurs midway between Point Reyes and Tomales Point. These differences reflect, in part, differences in substratum type (sedimentary rock to the south and granitic rock to the north), but also the markedly different oceanographic environment north and south of Point Reyes. The third subregion is defined by the unique environment at the Farallon Islands as described in the "unique habitats" response by the SAT. There is an additional change in substratum types in the northern portion of the study region, but there are not data indicating corresponding changes in biological communities. It is reasonable to expect patterns in subtidal habitats to be similar to those of the more well studied intertidal habitats described here; such correspondence is common elsewhere in the state.

California MLPA Master Plan Science Advisory Team
Responses to Science Questions Posed by
Santi Roberts/Oceana in a Letter Dated September 10, 2007
Revised November 20, 2007

The following are responses of the MLPA Master Plan Science Advisory Team (SAT) to questions posed by Santi Roberts, representing Oceana and a member of the MLPA North Central Coast Regional Stakeholder Group (NCCRS), in a letter dated September 10, 2007. These responses were prepared by SAT work groups and approved by the SAT.

1. How large do MPAs need to be to accomplish the objective of enhancing local populations of forage species (including squid, sardines, anchovies, and herring)?

This response was adopted by the SAT at its November 13, 2007 meeting.

Draft response: Particulars about the movements of squid, sardines, anchovies, and herring are not well known, however, all these species are believed to move hundreds of miles within their lifetime and known to range well beyond the boundary of state waters. Given the wide-ranging nature of these coastal pelagic species, it is unlikely that any MPA or network of MPAs designed within the limits of state waters could contain and protect a population of any of these species throughout their life cycle.

For coastal pelagic species, a consideration of the timing and location of spawning may be the best approach to MPA enhancement of local populations. For instance, market squid spend the majority of their lives offshore, moving inshore only for reproduction, to spawning grounds at depths of 3-180m (Hixon 1983).

In the case of Northern anchovy, most spawning occurs south of the NCCSR. Most anchovy live within 100 miles of shore, occasionally entering estuarine waters; tagging studies reveal movements from San Francisco to Monterey, central California to southern California, and visa versa, and southern California to northern Baja (Love 1996).

Herring are usually found along the open coast (Love 1996), frequently off-shore (Eschmeyer et al. 1983). These fish move inshore to harbors, bays, and large estuaries for spawning (Eschmeyer et al. 1983, Love 1996), especially during the peak spawning months of January and February. Spawning, usually a night-time occurrence, takes place from San Diego Bay northward, with major runs beginning in SF Bay. Most spawning occurs in very shallow, and sometimes intertidal, waters down to 11m (Love 1996).

Sardine are found very close to shore, as well as hundreds of miles off the coast (Love 1996). On average, about 10 percent of the sardine population migrates into Canada each year (Dept. of Fisheries and Oceans Canada). Much sardine spawning occurs near shore, but it is likely that some takes place at least 90m out to sea (Love 1996).

References:

Dept of Fisheries and Oceans Canada:

www.dfo-mpo.gc.ca/csas/Csas/status/2004/SSR2004_037_E.pdf

Eschmeyer, WN, Herald, ES, and H Hammann 1983. A Field Guide to Pacific Coast Fishes of North America. Houghton Mifflin Company, Boston.

Hixon, RF 1983. *Loligo opalescens*. In: Boyle P.R. (Ed.), *Cephalopod Life Cycles*, Vol. 10. Academic Press, London, pp. 95–114

Love, Milton 1996. *Probably More Than You Want to Know About the Fishes of the Pacific Coast*. Really Big Press, Santa Barbara.

2. Which seafloor habitat types in the study area are most sensitive to physical disturbance and which fishing gear types have the potential to damage the seafloor?

This response was adopted by the SAT at its November 13, 2007 meeting.

Draft response: A review of available literature on habitat disturbance by fishing gear shows that biogenic habitats (e.g. kelp forests, sea grass beds, deep coral communities) are the most sensitive to physical disturbance. Hard bottom habitats (e.g. rocky reefs) are generally less sensitive to disturbance than biogenic habitats but are still more vulnerable than soft bottom habitats. However some habitats naturally turnover more frequently than others and would be less susceptible to disturbance.

Dredges are the fishing gear most likely to cause extensive habitat damage. Bottom trawl gear (especially over hard bottom habitat) can also cause extensive habitat disturbance. Nets (eg. seine, gill, dip, trammel and salmon reef nets) that are not dragged over the bottom cause less disturbance than trawl gear. Trap (including crab traps/pots) and hook and line fishing (including longline fishing) are the least impacting fishing methods.

References:

Auster, PJ and RW Langton. 1999. The effects of fishing on fish habitat. In: *Fish Habitat: Essential Fish Habitat and Rehabilitation*. LE Benaka (ed). American Fisheries Society Symposium 22, Bethesda, Maryland. pp 150-187.

Johnson, KA. 2002. A Review of National and International Literature on the Effects of Fishing on Benthic Habitats. NOAA Tech. Memo. NMFS-F/SPO-57. 72 p.

MRAG Americas. 2004. *Essential Fish Habitat EIS: Risk Assessment for the Pacific Groundfish FMP*. Prepared for Pacific Council EIS Oversight Committee August 2004 Meeting Briefing Book. August 2004.

Watling, L and EA Norse. 1998. Disturbance of the seabed by mobile fishing gear: a comparison to forest clearcutting. *Conservation Biology* 12: 1180-1197.

3. How can MPAs most effectively protect corridors and hotspots for migratory species (including white sharks)?

This response was adopted by the SAT at its October 1, 2007 meeting.

Response: Thoughtful placement of MPAs can be useful for protecting migratory species. MPAs placed at migration bottlenecks and in areas that are critical to certain life stages of migratory species will enable better protection for the target species. A good example of a migration bottleneck is when salmon return to their natal rivers to spawn. Placing a protected area in the coastal waters offshore of the river mouth will protect salmon during a crucial life stage. Other species also form spawning aggregations in certain areas, which can frequently, but not always, be identified as areas with the highest catch per unit effort (if the species is fished). Closure of these areas would protect the species during a sensitive life stage, but could have significant fishery impacts.

Since little is known about the breeding locations of white sharks, protecting forage species in areas where white sharks aggregate (e.g. the Farallones, Tomales Point) would likely benefit them.

References:

Roberts, C.M. 2000. Selecting marine reserve locations: optimality versus opportunism. *Bull. Mar. Sci.* 66: 581-592.

Taylor Chapple, personal communication.

4. For the purpose of enhancing populations of groundfish and other benthic species, is it more effective to design MPAs that encompass entire reefs or fractions of reefs?

This response was adopted by the SAT at its November 13, 2007 meeting.

Draft response: An MPA that encompasses an entire reef is likely to be more effective in protecting populations of reef fishes than an MPA that encompasses only a fraction of the reef because reef species with small home ranges are more likely to move within the confines of a single reef than to move outside of the reef into less desirable habitat.

Benthic reef fish species show preferences for rocky reef type habitat and are less often found over sandy bottom type habitat. Two studies that have looked at movement away from rocky reefs for copper and quillback rockfishes have shown that individuals do not move off high relief reefs and even return to these reefs when displaced (Matthews 1990a, b). Ongoing studies on kelp rockfish and kelp greenling have shown that these species have small home ranges that are located on the reef and individuals do not venture far from these reefs and rarely cross extensive areas of sandy bottom (Freiwald, unpublished data).

California sheephead and kelp bass have been shown to prefer kelp forest habitat over mud/sand bottom type habitat. Even when these species move outside of the hard bottom reef areas, they always return to reefs where they spent most of their time (Lowe et al.

2003, Topping et al. 2006).

For species that are less associated with the benthic habitat and with greater movement range the inclusion of entire reefs is probably less important because these species move on scales that are often larger than individual reefs.

In conclusion, the above studies show that including entire reefs that are surrounded by other habitat types will protect species that have limited movement of adult individuals away from reefs. Placing MPA boundaries off the reefs in other habitat types will help to contain individuals within the boundaries of MPA and reduce their level of exposure to exploitation, even in smaller MPAs.

References:

Lowe, C. G., D. T. Topping, D. P. Cartamil, and Y. P. Papastamatiou. 2003. Movement patterns, home ranges and habitat utilization of adult kelp bass *Paralabrax clathratus* in a temperate no-take marine reserve. *Marine Ecology Progress Series* 256:205-216.

Matthews, K. R. 1990a. An Experimental Study of the Habitat Preferences and Movement Patterns of Copper Quillback and Brown Rockfishes *Sebastes*-Spp. *Environmental Biology of Fishes* 29:161-178.

Matthews, K. R. 1990b. A Telemetric Study of the Home Ranges and Homing Routes of Copper and Quillback Rockfishes on Shallow Rocky Reefs. *Canadian Journal of Zoology* 68:2243-2250.

Topping, D. T., C. G. Lowe, and J. E. Caselle. 2006. Site fidelity and seasonal movement patterns of adult California sheephead *Semicossyphus pulcher* (Labridae): an acoustic monitoring study. *Marine Ecology-Progress Series* 326:257-267.

5. How can MPAs benefit species by protecting them during critical/sensitive life stages, behaviors, or biological processes (e.g. spawning, feeding, resting)?

This response was adopted by the SAT at its November 13, 2007 meeting.

Draft response: MPAs can benefit species by reducing mortality during sensitive life stages or behaviors. This is only feasible when the behaviors or life stages occur in specific habitats or locations. For example, bat rays congregate in estuaries to breed in the fall. By eliminating fishing mortality in the estuary, you would protect the rays during this vulnerable period and potentially benefit the population as a whole. The SAT notes that protecting spawning and other aggregations of marine life often has benefits but can also scatter fishing effort leading to increased bycatch, increased catch of non-reproductive juveniles, or increased habitat disturbance as the fishing effort is spread over a broader area. Reduced fishing efficiency may also have socioeconomic impacts.

6. The central coast SAT [reference is to the 2005-2007 SAT] recognized the need to protect the different assemblages associated with granitic versus sedimentary substrate. Are there similar differences in assemblages associated with different hard-bottom substrates in the NCC region, and can the SAT help identify or predict them?

Draft response: Please refer to the response to Question 9 from the list of questions from the NCCRSF August 22-23, 2007 meeting.

To: MLPA North Central Coast Regional Stakeholder Group
From: MLPA I-Team
Re: Attached responses to science questions
Date: December 10, 2007

Attached to this memo are MLPA Master Plan Science Advisory Team (SAT) responses to science questions from your August 22-23, 2007 meeting as well as MLPA staff and preliminary SAT responses to questions from your October 16-17, 2007 meeting.

SAT responses to questions from your August 22-23 meeting have all been provisionally approved by the full SAT pending a few minor revisions and additional language. There are two responses that still require those minor revisions and those are labeled as such in the document

The responses provided to questions from your October 16-17 meeting have been addressed by MLPA Initiative and California Department of Fish and Game staff where those questions were either management or policy in nature. Science questions will be responded to by the SAT; where available, draft SAT work group responses are provided. The full SAT will review all draft responses at its next meeting and will continue to develop responses to questions that do not yet have a response.

California MLPA Master Plan Science Advisory Team
Draft Responses to Science Questions Posed by the
NCCRSG at its August 22-23, 2007 Meeting
Revised December 9, 2007

The following are draft responses of the MLPA Master Plan Science Advisory Team (SAT) to questions posed by the MLPA North Central Coast Regional Stakeholder Group (NCCRSG) at its August 22-23, 2007 meeting. These draft responses have been prepared by work groups of the SAT.

1. Are the deep water benthic habitats and water column habitat around the Farallon Islands unique as well as worthy of inclusion?

This response was adopted by the SAT at its October 1, 2007 meeting.

Response: The SAT has identified the intertidal, subtidal, and water column habitats around the Farallon Islands as unique. (Please refer to the response to Question 2 from the list of questions from the NCCRSG July 10-11, 2007 meeting.) Habitats that are unique are, according to the regional goals and objectives, worthy of inclusion.

2. Specifically – where does the subtidal start? For MLPA purposes does it only span to the extent of state waters or does it extend to XX depth (and if so what depth)?

This response was adopted by the SAT at its October 1, 2007 meeting.

Response: The subtidal includes all habitats deeper than the mean lower low water level, including state, federal, and international waters (Please refer to the response to Question 2 from the list of questions from the NCCRSG July 10-11, 2007 meeting).

3. What level of protection would you assign to marine protected areas (MPAs) that allow take of salmon, abalone, urchin, clams, halibut, white seabass, and crab? (Mark Carr, Ray Hilborn)

Draft Response: This response is incorporated in the *SAT Draft MLPA Evaluation Methods for MPA Array Proposals* document and requires further discussion before being adopted.

4. What is range and pattern of movement for the various life-stages of yellow-eye rockfish, surfperch, greenling, cabezon, [monkeyfaced pricklyback (a.k.a. monkeyfaced eel, *Cebidichthys violaceus*)] and [rock pricklyback, (*Xiphister mucosus*)], halibut, and white seabass? (Mark Carr, Jan Freiwald)

This response was adopted by the full SAT at its November 13, 2007 meeting pending the addition of reference to the time frame of the studies and clarification of surfperch habitats.

Draft response: A literature review conducted by Jan Freiwald shows that 75% of tagged individuals of the following species moved less than 0.5 km during the study period:

- yellow-eye rockfish (*Sebastes ruberrimus*)

- surfperch (*Embiotoca jacksoni* and *E. lateralis*)
- greenling (*Hexagrammos decagrammus*)
- cabezon (*Scorpaenichthys marmoratus*)
- monkeyface prickleback (*Cebidichthys violaceus*)*

* A study on monkeyface prickleback movement was excluded from the literature review analysis because fewer than 10 individuals were tagged. However, all tagged individuals moved less than 3 km.

The SAT was unable to find information on the movement of rock prickleback or white seabass.

References

- Coombs, C. I. 1979. Reef fishes near Depoe Bay, Oregon: movement and the recreational fishery. Oregon State University.
- DeMott, G. E. 1983. Movement of tagged lingcod and rockfishes off Depoe Bay, Oregon. M.S. Thesis Oregon State University.
- DeWees, C. M., and D. W. Gotshall. 1974. An experimental artificial reef in Humboldt Bay, California. California Fish and Game 60.
- Freiwald, unpublished
- Helm, R. C. 1990. Population dynamics of an intertidal eel blenny, *Cebidichthys violaceus*: Diet, growth, homing, and avian predation. Ph.D. Thesis. University of California Davis.
- Hixon, M. A. 1981. An experimental analysis of territoriality in the California reef fish *Embiotoca jacksoni* (Embiotocidae). Copeia 1981:653-665.
- Lea, R. N., R. D. McAllister, and D. VenTresca. 1999. Biological aspects of nearshore rockfishes of the genus *Sebastes* from Central California with notes on ecological related sport fishes Fish Bulletin 177.
- Matthews, K. R. 1985. Species similarity and movement of fishes on natural and artificial reefs in Monterey Bay, California. Bulletin of Marine Science 37:252-270.
- Miller, D. J., and J. J. Geible. 1973. Summary of blue rockfish and lingcod life histories; a reef ecology study, and giant kelp, *Macrocystis pyrifera*, experiments in Monterey Bay, California. Fish Bulletin 158:137.
- Ralston, S. L., and M. H. Horn. 1986. High tide movements of the temperate-zone herbivorous fish *Cebidichthys violaceus* (Girard) as determined by ultrasonic telemetry. Journal of Experimental Marine Biology and Ecology 98:35-50.

California Halibut (*Paralichthys Californicus*)

Tagging studies of California halibut indicate that the majority of individuals remain in a localized area for extended periods of time, while others move long distances along the coast (Domeier and Chun 1995, Posner and Lavenberg 1999). In the Posner and Lavenberg study, 65% of recaptured halibut were recaptured within 5.5km of their release

site (this is the highest resolution of movement provided by the data). In the Domeier and Chun study, 60% of recaptured halibut moved less than 2 km during the study period. The authors note that most recaptured fish were at liberty for fewer than 100 days likely due to a high rate of tag loss; however, even within that 100 days, some individuals moved more than 300 km.

Any distinctions between adult and juvenile patterns of movement are still unclear, as few of the halibut in these tagging studies were larger than the sport fishery size limit of 56 cm total length (17% in the Domeier and Chun, only 3% in Posner and Lavenberg). In the Domeier and Chun study, halibut larger than 50 cm (approx 30% of sample size) tended to travel markedly greater distances than halibut smaller than 50 cm.

A study focusing on juvenile California halibut settlement revealed preference either for bays or the open coast. However, almost all coastal settlers entered and used the bays as nursery areas during their first year of life, or else they died (Kramer 1991).

References

- Domeier, ML and CSY Chun 1995. A Tagging Study of the California Halibut (*Paralichthys californicus*). California Department of Fish and Game, CalCOFI Rep., Vol. 36
- Kramer, SH 1991. Growth, mortality, and movements of juvenile California halibut *Paralichthys californicus* in shallow coastal and bay habitats of San Diego County, California. Fishery Bulletin 89(2) 195-207
- Posner, M and RJ Lavenberg 1999. Movement of California halibut along the coast of California. California Fish and Game, Vol. 85(2) 45-55

- 5. In the central coast study region the recommendation to extend MPAs to the three mile state water limit to cover the range of depths and species that utilize the range of depths made sense, but the north central coast study region is largely homogenous out to the three mile limit, so does it still require MPA extension to the three mile state water boundary?**

This response was adopted by the SAT at its November 13, 2007 meeting.

Draft response: The SAT recommends that MPAs be designed to extend from the intertidal to the boundary of state waters to encompass the depth-related movements of various species across the range of depths in state waters. The SAT recommends that MPAs in the 30-100 m depth range encompass as much of this depth range as possible out to the boundary of state waters, thereby protecting the collective number of species that occur there and accommodating their depth-related migrations.

In the case that the habitat is homogeneous (uniform substrate and uniform depth $\pm 5\text{m}$) across a broad area, MPAs should be designed to encompass adult neighborhood sizes and movement patterns in both alongshore and cross-shore directions. In the MPA design guidelines, the SAT recommends that MPAs span a minimum of 3 miles alongshore to encompass adult movement patterns. In cases where habitat is homogeneous across a

broad area, adults are likely to extend their movement in both alongshore and cross-shore directions; therefore, MPAs should also extend a minimum of three miles seaward (towards the state waters boundary) to encompass these movements. The SAT notes that extending MPA boundaries to the edge of state waters has the added benefit of allowing for connections with possible future MPA designations in federal waters.

(For additional information please refer to the response to Question 4 from the list of questions from the NCCRSB July 10-11, 2007 meeting.)

- 6. How do you evaluate proposals relative to Goal 2, Objective 2 for the protection of foraging, nursery and rearing areas?**
a. Specifically, also considering seabirds, mammals, and sharks.

This response was adopted by the SAT at its November 13, 2007 meeting.

Draft response: (Question 6) Fish and invertebrates use habitats already named in the master plan for MPAs goals and objectives (such as estuaries and kelp forest/rocky reefs) for their foraging, nursery, and rearing activities. Therefore, evaluating proposals for protection of these habitats will suffice to evaluate protection of foraging, nursery and rearing areas for most fish and invertebrate species.

Draft response: (Question 6a – reference to sharks) An analysis of available information about shark breeding, forage, and nursery areas indicates that sharks largely use habitats already named in the master plan for MPAs goals and objectives (such as estuaries and soft bottom) for these activities (see table below). Therefore, evaluating proposals for protection of these habitats will suffice to evaluate protection of foraging, nursery and rearing areas for most shark species in the study region. The special importance of estuarine habitats for certain species of shark should be noted. Proposals that protect a high proportion of the available estuarine habitats will be especially protective of these species.

Common Name	Scientific Name	Forage Areas	Breeding Areas	Nursery Areas
Sevengill shark	<i>Notorynchus cepedianus</i>	San Francisco Bay (SFB)	SFB birthing	SFB
Spiny dogfish	<i>Squalus acanthias</i>	SFB	(season: Sept-Jan)	young occupy pelagic
Angel shark	<i>Squatina californica</i>	soft flat bottoms near vertical relief	unknown	unknown
Basking shark	<i>Cetorhinus maximus</i>	near-surface filter feeders: areas of abundant plankton	unknown	thought to be in plankton-rich oceanic waters at higher latitudes and far away from coastal areas

Common Name	Scientific Name	Forage Areas	Breeding Areas	Nursery Areas
White shark	<i>Carcharodon carcharias</i>	Farallons, Bodega Headlands, Ano Nuevo	unknown	warm-temperate areas
Leopard shark	<i>Triakis semifasciata</i>	SFB, Tomales, Drakes Estero	(in spring) SFB birthing within eel grass beds	SFB, Tomales, Drakes Estero
Brown smoothhound shark	<i>Mustelus henlei</i>	SFB, Tomales	unknown	SFB, Tomales
Soupfin shark	<i>Galeorhinus galeus</i>	demersal and pelagic	(in spring)	SFB, Tomales (# has declined to since fishery of 30's-40's, still under historic levels)
Torpedo ray	<i>Torpedo californica</i>	sandy bottoms, near kelp beds, around rocky reefs	unknown	unknown
Big skate	<i>Raja binoculata</i>	coastal benthic	unknown	unknown
California skate	<i>Raja inornata</i>	nearshore soft bottom benthic	unknown	unknown
Longnose skate	<i>Raja rhina</i>	on or near reefs with vertical relief	unknown	unknown
Starry skate	<i>Raja stellulata</i>	nearshore benthic	unknown	unknown
Bat ray	<i>Myliobatis californicus</i>	SFB, Tomales, Drakes Estero	unknown	SFB, Tomales, Drakes Estero
White-spotted chimaera	<i>Hydrolagus colliei</i>	benthic mud or cobblestone near vertical relief	(maximum spawning during spring and summer) egg cases deposited on mud or gravel substrate	Cordell Banks
Salmon shark	<i>Lamna ditropis</i>	Nearshore to deep oceanic waters, from the surface to depths of 375m	Ovoviviparous, breeding occurs in fall and birthing in late spring (2-4 pups); gestation is believed somewhat less than one year	Central California is the most common area for ages zero and one; selected nursery areas offer rich feeding and relatively few potential predators

Draft response: (Question 6a – reference to birds and mammals) This response is incorporated in the *SAT Draft MLPA Evaluation Methods for MPA Array Proposals* document and requires further discussion before being adopted.

7. Provide an estimate of number of pinnipeds in the area and an estimate of weight of fish taken.
- a. Also want to know what impacts range expansion of Humboldt squid has and how that should be considered.

This response was adopted by the SAT at its November 13, 2007 meeting.

Draft response: (Question 7) Five pinniped species commonly occur in the north central coast study region: harbor seals (*Phoca vitulina*), California sea lions (*Zalophus californianus*), Steller sea lions (*Eumetopias jubatus*), northern fur seals (*Callorhinus ursinus*), and northern elephant seals (*Mirounga angustirostris*). Of these species, only harbor seals are year-round residents; other species visit the region seasonally or are migratory. Peak abundance estimates for these species in the MLPA North Central Coast Study Region are:

Harbor seals: ~8000—during the breeding season

California sea lions: ~2000—most are male winter visitors to the study region

Steller sea lions: ~250—southern limit of the species, with small breeding colonies in the study region

Northern fur seals: ~250—this species migrates through the region primarily offshore of state waters, but there is a small breeding population at the Farallons

Northern elephant seals: ~3000—migratory and present in the study region during breeding and molting seasons, likely do not feed in the area

These numbers are the best available average peak population estimates, and actual numbers can vary greatly. Furthermore, abundances and behaviors vary among seasons and among species.

Population fluctuations and seasonal variation in feeding intensity make it difficult to provide accurate estimates of the total weight of fish taken in the study region by pinnipeds. Current estimates are that actively feeding pinnipeds consume from 4% to 10% of their body weight each day, with an average of 6%. Juveniles and pregnant females consume a higher percentage of their body weight than non-pregnant adults. It is important to note that not all pinnipeds are actively feeding during the breeding season. Also, many pinnipeds target juvenile or mid-sized fish, not large mature individuals. Average pinniped body size and a rough estimate of the weight of fish consumed daily are presented in the table below.

Species	Avg. Female (lbs)	Avg. Male (lbs)	Weight of Prey Consumed (lbs/day)	Prey Species
Harbor Seal	180	180	10	Fish, squid, octopus
Cal. Sea Lion	180	600	10-35	Fish, squid, octopus

Steller Sea Lion	580	1250	30-75	Fish, squid, octopus
Northern Fur Seal	100	525	10-30	Small fish, invertebrates

Northern elephant seals likely do not feed in the area, instead migrating to Alaska and the north Pacific gyre to feed.

References

- Lowry, M.S., J.V. Carretta, and K.A. Forney. 2005. Pacific harbor seal census in California during May-July 2004. NMFS SWFSC Admin. Report LJ-05-06.
- Manna, J., D. Roberts, D. Press, and S. Allen. 2006. Harbor seal monitoring, San Francisco Bay area. Annual report, NPS.
- Sydeman, W.J. and S.G. Allen. 1999. Pinniped population dynamics in central California: correlations with sea surface temperature and upwelling indices. *Mar. Mamm. Sci.* 15: 446-461.
- Personal communication: Sarah Allen (Point Reyes National Seashore), Beth Phillips (Marine Wildlife Veterinary Care and Research Center), Jacquie Hilterman (The Marine Mammal Center, and Dede Sabbag (The Marine Mammal Center).

Note that a similar question was asked during the MLPA Central Coast Project; that question and response are:

Question: What are historic and recent population trends (spatial and temporal) of marine mammals (sea lions, harbor seals and sea otters specifically)? What are their diets? What is the impact of their feeding on commercially and recreationally important species?

Efforts to protect and rebuild marine fish and shellfish populations within marine protected areas by restricting or prohibiting fishing may be undermined by consumption of species of concern by top-end predators, chiefly marine mammals. Some stakeholders believe that the effect of such predation should be evaluated and, where possible, steps taken to address possible impacts of top end predators on MPAs.

Relation to the MLPA and MPF (Master Plan Framework) and Other Relevant Law. The MLPA and the MPF are silent on the impact of marine mammals and other top-end predators. Predation by marine mammals is not one of the major threats identified in the act. Nor does the act single out particular species or groups of species. Instead, the act focuses upon ecosystems. Passage of the Marine Mammal Protection Act in 1972 and the Endangered Species Act in 1973 pre-empted the management authority of individual states over marine mammals and species listed under the Endangered Species Act. With few exceptions, both acts prohibit the taking of species under their jurisdiction. Taking includes intentional and unintentional hunting, harm, harassment, or injury. Under the ESA, these

prohibitions may be extended to species listed as threatened, as they have been for the southern sea otter. Exemptions to these prohibitions are very limited, generally to taking by Native Americans for certain purposes, taking for scientific research, public display, or enhancement, or taking incidental to commercial fishing or other non-fishing activities. The regulatory requirements for the use of these exemptions are very rigorous.

Both the Endangered Species Act and the Marine Mammal Protection Act emphasize the role of marine mammals, and other species, in maintaining healthy ecosystems. Similarly, the MLPA takes an ecosystem-based approach, rather than an ecosystem management approach, which would suggest that we have the knowledge and experience to manage ecosystems through manipulation of species.

Recommendation: Below, MLPA Initiative staff have provided a summary of available information on population trends and diets of California sea lions, harbor seals, and southern sea otters. While the California sea lion population continues to grow, harbor seal and southern sea otter populations have remained relatively steady. Although estimates are available for total consumption rates by California sea lions, no analysis has been conducted on the short-term or long-term impact of this consumption on populations of prey. As discussed in the response to another information request of the CCRSG, it does appear that southern sea otters have had an impact on the abundance of some invertebrate populations. The State of California does not have management authority for marine mammals or species listed under the Endangered Species Act. Staff recommends that in designing and evaluating MPAs, the CCRSG take note of the presence of marine mammals in MPA areas and, if appropriate, include the impacts of marine mammals on species of concern in recommended targets for monitoring. Like other monitoring information, this information should be used to monitor the effectiveness of an MPA and to manage it adaptively in the future.

Further information: The following responses emphasize information from central California over information from other regions. Little to no information on historical abundances was available for California sea lions, harbor seals, and southern sea otters, although some early estimates are included for the purposes of comparison with later systematic censuses.

California sea lions: The range of California sea lions extends from the Pacific coast of Baja California to southern British Columbia. These animals breed primarily in the southern part of their range from the Gulf of California to San Miguel Island. Commercial hunting in the 19th and early 20th centuries likely reduced California sea lion populations. In the late 1920s, only 1,000-1,500 California sea lions were counted on the shores of California. Since a general moratorium on hunting marine mammals was imposed with passage of the Marine Mammal Protection Act (MMPA) in 1972, the population has grown substantially to a current estimate of 237,000-244,000 animals. Between 1975 and 2001, the population grew at an average annual rate of 5.4%. California sea lions are plastic specialist predators—that is, they feed on specific species of prey, which change as different species become more abundant seasonally or from year to year. In the case of California sea lions, these species include Pacific hake, northern anchovy, Pacific sardine, spiny dogfish, and

squid. In a recent study at Año Nuevo Island, sea lions were found to feed on rockfishes, Pacific whiting, market squid, Pacific sardine, northern anchovy, spiny dogfish shark, and salmonids (Weise and Harvey 2005). Based on this research, Weise and Harvey estimated sea lions in central California consumed 8,406 - 8,447 tons of prey species in 2001-2002, of which 450 tons-1,525 tons were salmonids. In recent years, salmon fishermen have increasingly complained about damage to gear and catches by California sea lions. Between 1997 and 1999, Monterey Bay commercial fishermen suffered estimated losses that ranged from \$18,031 to \$60,570 for gear and \$225,833 to \$498,076 in salmon (Weise and Harvey *in press*). For the same period, Weise and Harvey estimated that sea lions fed upon hooked salmon at rates that ranged from 8.5% to 28.6% in the commercial fishery, 2.2% to 18.36% in the CPFV fishery, and 4.0% to 17.5% in the personal skiff fishery. Predation rates were highest in the El Niño year of 1998 when the abundance of other prey was reduced.

Harbor Seals: Harbor seals in the eastern Pacific range from the Pribilof Islands in Alaska to Isla San Martín off Baja. Between the Mexican and Canadian borders, harbor seals have been managed as three separate stocks, of which one is the stock off California. After passage of the MMPA in 1972, harbor seal abundance grew rapidly until 1990, when stocks leveled off. There has been no net population growth in California since 1990 (Caretta *et al.* 2004). In 2002, the population was estimated at 27,863 animals. Harbor seals eat a wide variety of pelagic and benthic prey, including small schooling fishes such as northern anchovy, many species of flatfishes, rockfishes, and cephalopods (Antonelis and Fiscus 1980, Weise and Harvey 2001 and references therein). Diet studies of harbor seals in central California did not find evidence of predation on ocean-swimming salmonids, though they were found to eat small salmonids returning to spawning streams in central and northern California (NMFS 1997; Weise and Harvey 2001).

Southern Sea Otters: Once ranging from northern California to Punta Abreojos in Baja California Sur, with few exceptions, southern sea otters are now found only from Point Año Nuevo in Santa Cruz County to Purísima Point in Santa Barbara County (USFWS 1995, 2003). Commercial hunting severely reduced sea otter populations in the 18th and 19th centuries. By 1914, the California population of sea otters may have numbered as few as 50 animals. Between 1983 and 1994, the sea otter population grew at an average annual rate of 5-6%, and reached a maximum observed population size of 2,377 individuals in the spring of 1995. Sea otter numbers have fluctuated since then. Since 1998, the population has increased at a rate of 0.9%, based on the three-year running average. Though recent estimates indicate that the population is growing, recovery is still inhibited by a variety of factors that contribute to otter mortality including: incidental drowning in gill and trammel nets, oil spills, toxic contaminants, other human impacts, and disease (Hanni *et al.* 2003, Miller *et al.* 2004, USFWS 2003). Otters have been shown to be a keystone species, exerting strong top-down control on their prey species (Estes and Palmisano 1974, Estes and Duggins 1995). Their predation on sea urchins has been shown to limit urchin abundance, allowing for the growth of kelp forests and associated species (Estes and Palmisano 1974, Estes and Duggins 1995). Sea otters have a varied diet consisting of benthic invertebrates such as red sea urchins (*Strongylocentrotus franciscanus*), red (*Haliotis rufescens*) and black abalone (*H. cracherodii*), kelp crabs (*Pugettia producta*),

clams (*Gari californica*), and cancer crabs (*Cancer spp.*) (Ostfeld 1982). Expansion of sea otter populations, following protection from harvest, resulted in conflicts with commercial and recreational abalone fisheries that had developed when otter numbers were depressed and abalone were abundant (Estes and VanBlaricom 1985). In some locations, predation by otters may have a larger effect on red abalone populations than current human harvest rates (Fanshawe *et al.* 2003). **–End of MLPA Central Coast Project response–**

Draft response: (Question 7a) Though observational field data shows a recent increase in the number of Humboldt squid (*Dosidicus gigas*) in the California Current ecosystem, it is currently unknown whether these observations represent a permanent range expansion or a temporary intrusion into the MLPA North Central Coast Study Region at the limit of its range. There is insufficient information on Humboldt squid abundances and feeding habits to accurately predict how increases in their numbers (whether temporary or permanent) can impact local ecosystems. However, as Humboldt squid are predators of commercially-important fish species, as well as being prey of species at higher trophic levels, impacts are conceivable. For the purpose of the MLPA initiative, however, Humboldt squid will probably have negligible direct impacts, as they occur outside of state waters in areas deeper than 200m.

References

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- Zeidberg, L.D. and B.H. Robison. 2007. Invasive range expansion by the Humboldt squid, *Dosidicus gigas*, in the eastern North Pacific. PNAS 104: 12948-12950.

8. **Request a finer gradation of the chart Steve Gaines presented on species home range of 10-100 kilometers. [Is it possible to disaggregate the 10-100 km category for home ranges into a finer set?]** (Mark Carr, Jan Freiwald, Rick Starr)

This response requires further review before being adopted by the SAT.

Draft response: Robust studies of the movements of west coast fish and invertebrates are limited, but a thorough review of available literature conducted by Jan Freiwald, enabled a refinement of the adult movement chart

Adult Movement of West Coast Fish and Invertebrates

Move 0-1 km	Move 1-10 km	Move 10-100 km
0-0.5 km striped surfperch pile surfperch Pacific staghorn sculpin painted greenling kelp greenling kelp bass kelp rockfish black-and-yellow rockfish widow rockfish vermillion rockfish yelloweye rockfish olive rockfish monkeyface prickleback* cabezon black surfperch red irish lord brown rockfish copper rockfish quillback rockfish starry rockfish* grass rockfish* rosy rockfish* treefish*	1-5 km gopher rockfish blue rockfish bocaccio California halibut** walleye surfperch* greenspotted rockfish*	10-20 km Dungeness crab lingcod yellowtail rockfish black rockfish 20-125 km canary rockfish

* studies of this species had fewer than 10 individuals

** see the response to question 4 in this document for more information

9. The master plan for MPAs science guidelines suggest that marine assemblages may differ depending on the substrate type, even within the broad 'hard bottom' category. Specifically they suggest there may be differences in assemblages in and over granitic and sedimentary substrate on the central coast. In this regard:
- Does the same hold true for granitic, sedimentary, and Franciscan substrate on the north central coast?
 - If so, does the SAT know of some way to predict where these substrates occur given the Rikk Kvitek data or otherwise?
 - Can the SAT provide more information on what the composition of the assemblages is likely to be in and over these different substrate types? (so *regional stakeholders know what they're trying to protect, if necessary*)

This response was adopted by the SAT at its October 1, 2007 meeting.

Response: (Question 9a) In general granitic rock forms high relief, broad, dome-shaped reefs relative to sedimentary rock, which tends to form narrow linear ridges, while the relief and morphology of Franciscan formations is highly variable and tends toward isolated sea stacks. In the central coast region, studies have shown that substrate relief influences fish assemblages. There is no data in the NCCSR to determine if such species-habitat relationships occur in the north central region, however, it is likely that reef relief influences fish assemblages in the region, as it does elsewhere.

Response: (Question 9b) Interpretation of multibeam imagery of the ocean floor by Dr. Guy Cochrane (U.S. Geological Survey) and Irina Kogan (Gulf of the Farallones National Marine Sanctuary) in combination with other geological resources indicates that hard substrates in the MLPA North Central Coast Study Region include granitic and sedimentary rocks of the Salinian terrace, sedimentary rocks of the Great Valley Complex, and metasedimentary and metavolcanic rocks of the Franciscan Complex.

- From Pigeon Point (southern boundary of the study region) north to Elephant Rock (just south of Tomales Point) coastal substrate is largely sedimentary rock. Exceptions include:
 - Granite in Montara
 - Franciscan metasedimentary and metavolcanic rocks between Point San Pedro (Pacifica) and in Daly City where the San Andreas fault cuts across the coastline
 - Franciscan rocks (mix of rock types like in the Big Sur coast) between the Golden Gate and eastern Bolinas Lagoon (Wentworth 1997, USGS Open File Report 97-744 Part 5)
- Rock formations from Elephant Rock to Mussel Point and extending offshore to the northwest are granitic.
- From north of Mussel Point to Northwest Cape along the mainland (east of the San Andreas Fault) the substrate is metamorphic Franciscan.
- Rock formations from Northwest Cape to Point Arena are sedimentary (Great Valley Complex turbidite sandstone and conglomerate) (Blake et al. 2002, USGS Miscellaneous field studies map MF-2402).

Response: (Question 9c) There are no data in the MLPA North Central Coast Study Region to allow the science advisory team to predict how fish assemblages may vary across the three available substrate types. Based on studies conducted in the MLPA Central Coast Study Region, it is likely that sedimentary formations will support relatively more foliose red algae than benthic invert cover due to the friable/erodable nature of the rock which does not provide a firm substrate for invertebrates. It is also likely that the softer sedimentary substrate will support a greater proportion of burrowing species (e.g., Pholad clams).

California MLPA Master Plan Science Advisory Team
Draft Responses to Questions Received at the
October 16-17, 2007 NCCRS Meeting
Revised December 7, 2007

The questions listed below were received at the NCCRS meeting on October 16-17, 2007. MLPA I-Team staff and the MLPA Master Plan Science Advisory Team (SAT) co-chairs have reviewed the questions and determined that some are policy/management based, others are science-based, and still others have both policy and science components.

This document contains responses to all of these questions. I-Team staff has provided responses to the policy/management questions, while the SAT has provided responses to the science questions. Some questions contain both policy and science responses.

1. Would allowance of shore-based angling along a broad (100 yard) ribbon of the coast be acceptable and what impact would this have on the protection level of an MPA?

Staff response: Each of these areas will, by definition, be classified as state marine conservation areas or state marine parks (SMCAs or SMPs) and will be evaluated against the California Department of Fish and Game's (DFG's) feasibility criteria as well as be given a level of protection by the SAT. DFG's recommendation is to propose an SMCA or SMP that allows fishing from shore. A boundary distance offshore is not recommended since 100 yard fishing zones are not easily enforced and this could negate the intent to allow only shore-based fishing. DFG recommends against a separate narrow SMCA that allows fishing sited adjacent to and inshore of an SMR or other designation. This creates an abrupt change in regulations, multiple designations in a small area, is difficult to enforce, and creates difficulties for public understanding. DFG recommends that the SAT provide input on the ecological impacts of shore-based fishing on the overall level of protection of the area.

Draft SAT response: A draft response to this question is still being formulated.

2. Where is the sewer outfall from San Francisco in relation to the Gulf of the Farallones National Marine Sanctuary?

Staff response: The outfall for San Francisco's treated sanitary wastewater is outside of the Gulf of the Farallones and Monterey Bay National Marine sanctuaries. The outfall is approximately 5 nautical miles west of the San Francisco/San Mateo County boundary, near the 20 meter depth contour. The eastern boundary of the Monterey Bay National Marine Sanctuary is approximately 4 nautical miles west of the outfall. The eastern boundary of the Gulf of the Farallones National Marine Sanctuary is approximately 8 nautical miles west of the outfall.

Reference: Oceanside Biology Laboratory. August 2007. Southwest Ocean Outfall Regional Monitoring Program 2006 Data Report. Prepared for San Francisco Public Utilities Commission Natural Resources and Land Management Division.

Accessed online 1 November 2007 http://www.mbnms-simon.org/docs/project/100212_2005_report.pdf

3. How should the NCCRSG consider or deal with international telecommunication cables that are being installed and may cross MPAs or future wave farms that may not allow access?

Staff response: A policy memo from the California Department of Fish and Game will be provided to the NCCRSG addressing the issue of other management measures, such as wave farms, which may impact the NCCRSG's deliberations.

4. Have any wave farms been proposed for this study region?

Staff response: Four wave energy proposals for California are currently under review by the Federal Energy Regulatory Commission (FERC). Additionally, one tidal energy proposal is under review. None of these proposals are within the MLPA North Central Coast Study Region, though at least two border the region closely. The proposals are:

1. Pacific Gas & Electric: "WaveConnect" pilot project off Humboldt Bay and Fort Bragg. The FERC application is for a 136 square mile study area off Humboldt Bay and 68 square mile area in Mendocino. The actual test sites could be about 1-4 square miles in area and would test multiple types of devices for a period of 3 years. They are not considering any on- or near-shore devices. The pilot project could be near 3 miles offshore.
2. Chevron: Two 40-megawatt wave farms off Fort Bragg are proposed.
3. Finavera: Planning to apply for a preliminary permit for the area north of Trinidad (Big Lagoon area). Finavera's plan is to install and test 4 buoy systems to generate 250 megawatts, on average. The four buoys would take up an area of ocean bottom approximately 950' by 200'.
4. Fairhaven Wave Energy: Proposal to place 40 to 80 wave energy converters (20 megawatts) in a site approximately ½ mile wide by 4 miles long northwest of Eureka.
5. Golden Gate Energy: Proposal is to develop a tidal current energy system. The system would be installed below the Golden Gate Bridge and use existing infrastructure for placement.

5. Can the SAT analyze displacement effects?

Staff response: This question was responded to at the NCCRSG meeting both by staff and SAT member Astrid Scholz; it is additionally addressed in the California Environmental Quality Act (CEQA) review of the central coast MPAs. It is extremely difficult to predict human behavior and response to fishery closed areas. At present, the spatial data necessary to effectively conduct this analysis is not available; such an analysis requires high precision small scale data on catch and fishing behavior. Monitoring efforts of the recently implemented central coast MPAs may in the future provide some insight into fishing behavioral shifts and displacement effects.

Reference

Jones & Stokes. 2006. *Environmental Impact Report: California marine Life Protection Act Initiative Central Coast marine Protected Areas Project*. Draft. November. State Clearinghouse #2006072060. (J&S 06682.06) Oakland, CA. Prepared for California Department of Fish and Game, Marine Region, Monterey, CA.

6. Is an MPA that protects Farallon rockfish likely to increase the abundance of juvenile rockfish in the Farallon subregion?

This response still requires review and further clarification by the full SAT before being adopted.

Draft SAT response: The interaction between adult and larval rockfish numbers within the Farallon subregion is a complex issue that depends on a number of physical and biological conditions. Though protecting adult rockfish in the Farallones should increase larval production through increased survival, growth, and age of adults, it is unclear if those larvae will be exported from the subregion or survive to adulthood if they are retained there. Complex current patterns around the Farallones could retain larvae near the islands or advect them inshore, where they could replenish populations along the coast, particularly those in the lee of Point Reyes due to the established current gyre in that area.

However, a growing number of studies indicate a surprising rate of local retention of larvae associated with islands (Hellberg et al. 2002, Kingsford et al. 2002, Sponaugle et al. 2002, Swearer et al. 2002, Thorrold et al. 2002, Warner & Cowen 2002). If larvae are retained at the Farallones, their contribution to adult rockfish populations depends on the size of the initial adult populations. Since adult rockfish prey on young rockfish (Hallacher & Roberts 1985), low initial adult populations (presumably due to fishing and marine mammal predation) would lead to higher juvenile survival. High numbers of adults (presumably due to protection from fishing) would decrease the survival rate of juvenile rockfish due to predation. However, predation might eventually increase larval production by providing increased growth and fecundity in adults. Due to natural variation in larval production and the uncertain role played by local currents, quantifying increases in larval production due to protection of adults in the Farallon subregion will be difficult.

References

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Thorrold, S.R., G.P. Jones, M.E. Hellberg, R.S. Burton, S.E. Swearer, J.E. Neigel, S.G. Morgan, and R.R. Warner. 2002. Quantifying larval retention and connectivity in marine populations with artificial and natural markers. Bull. Mar. Sci. 70: 291-308.

Warner, R.R. and R.K. Cowen. 2002. Local retention of production in marine populations: evidence, mechanisms, and consequences. Bull. Mar. Sci. 70: 245-249.

Personal communication: Dr. Mark Carr and Dr. Pete Raimondi.

7. The NCCRSG would like the SAT to (re)consider and comment on the following as possible additions to the list of species likely to benefit from MPAs. (An NCCRSG workgroup was tasked to come up with a list and rationale for review of particular species – see additional discussion points in Appendix I)

- a. Flat abalone, *Haliotis walallensis*, and Northern abalone, *Haliotis kamtschatkana* (see Rogers-Bennett, 2007, Sloan, 2004, and Gladstone, 2002)
- b. White sharks - SAT response to NCCRSG questions (revised Oct 12), "Since little is known about the breeding locations of white sharks, protecting forage species in areas where white sharks aggregate (e.g. the Farallones, Tomales Point) would likely benefit them."
- c. Salmonids - SAT response to NCCRSG questions (revised Oct 12), "Placing a protected area in the coastal waters offshore of the river mouth will protect salmon during a crucial life stage."

Draft SAT response: A draft response to this question is still being formulated.

8. Would the designation of a state marine reserve or other MPA around the mouth of a major estuary make a significant contribution to protection of anadromous fish that spawn upstream?

- a. Does the SAT have comments on what size and setback is likely to be protective? Would a fairly narrow boundary accomplish resource protection?
- b. Is there a risk of boats "fishing the line" if the boundary is drawn tight to the mouth of a river?

Draft SAT response to question 8: A draft response to this question is still being formulated.

Draft SAT response to question 8a: A draft response to this question is still being formulated.

Staff response to question 8b: It is the California Department of Fish and Game's (DFG's) experience in the Channel Islands and elsewhere that fishing effort is often exerted near the boundaries of area-based fishery closures. DFG enforcement staff are, however,

very familiar with enforcing boundary line regulations for both MPAs and other management. If the intent of a protected area is to protect fish returning to a specific spawning location, the area should be large enough to protect the congregation of animals around that location.

9. What impact would the delineation of "vessel no traffic zones" of varying widths have on the level of protection assigned to an MPA?

- a. What would be the specific benefit to seabirds and marine mammals?

Draft SAT response to question 9: A draft response to this question is still being formulated.

Staff response to question 9: The California Department of Fish and Game has issued a memo to the NCCRSG on the use of "special closures." This memo provides information to supplement the SAT response still being formulated.

Staff response to question 9a: This question was previously addressed. Please see the response to question 6 from the NCCRSG July 10-11, 2007 meeting.

Appendix I. Additional rationale and discussion provided by the NCCRSG for considering the species listed in Question 7.

- a. Flat abalone, *Haliotis walallensis*, and Northern abalone, *Haliotis kamtschatkana* (see Rogers-Bennett, 2007, Sloan, 2004, and Gladstone, 2002)

Rationale for this is based on the above scientific literature. Both species are under threat because of ocean warming contracting the southern portion of their ranges, the expansion of the sea otters range, and for the flat abalone, a commercial fishery in Oregon. They would also be a good candidate for "flagship" species that would highlight the need for kelp bed community conservation (Sloan, 2004). Gladstone (2002) included them with other mollusks as important indicator assemblages. In the mid- 90s, flat abalone were routinely observed at Saunder's Reef (*Lance Morgan, pers. comm., Oct. 2007*).

- b. White sharks - SAT response to NCCRSG questions (revised Oct 12), "Since little is known about the breeding locations of white sharks, protecting forage species in areas where white sharks aggregate (e.g. the Farallones, Tomales Point) would likely benefit them."

The following provides additional rationale and discussion for and against the inclusion of white sharks to the list of species likely to benefit from MPAs. These discussion points were summarized from email discussions among the NCCRSG about this topic.

Discussion and rationale against inclusion of white sharks to the list of species likely to benefit:

1. White sharks are already protected from fishing therefore would not benefit any further.
2. The forage base of white sharks is marine mammals, which are also fully protected.
3. Since little is known about the breeding locations of white sharks any considerations of MPA placement for benefiting white sharks would entail a 'shotgun' approach which is unacceptable for all other MPA requirements.
4. The feeding grounds for white sharks are very broad. "They eat whenever and where ever they want" therefore would not benefit from MPAs aimed at protecting forage.
5. There is no need to minimize human disturbance to foraging behavior. Seals have been known to board vessels to escape feeding white sharks. Therefore, white shark feeding behavior is not disturbed by vessel presence.

Discussion and rationale for inclusion of white sharks to the list of species likely to benefit:

1. Although white sharks are protected they would still gain benefit from additional protective designations such as MPAs since interactions with humans may still result in some level of take.

2. White sharks are internationally recognized as threatened and appear on the IUCN's red list and in CITES appendices.
 3. There are only four places where white sharks congregate in central and north central California. Three of those locations lie in the MLPA North Central Coast Study Region.
 4. It has been suggested that research is beginning to show there are limited numbers of white sharks and that some individuals may move between all four sites described above.
 5. As apex predators white sharks have small population sizes and are highly susceptible to human disturbance and impacts.
 6. White sharks mature late and have low fecundity.
 7. The Farallon Islands are an important white shark study area due to location and low human impact.
 8. Allowing take of other organisms increases risks to white sharks.
 9. White sharks frequent the same foraging grounds annually, therefore protecting forage grounds increases protection to white sharks.
 10. As an apex predator they promote ecosystem health and can be an indicator species.
- c. Salmonids - SAT response to NCCRSG questions (revised Oct 12), "Placing a protected area in the coastal waters offshore of the river mouth will protect salmon during a crucial life stage."

No additional rationale was provided.

California Marine Life Protection Act Initiative
Statewide Interests Group
Draft Meeting Agenda
(revised January 14, 2008)

Thursday, January 17, 2008

2:00 p.m.

Via conference call

Meeting Objectives

- *Provide status report on recent MLPA Initiative meetings*
- *Discuss planned February 4-6, 2008 public workshops (Attachment 1) and future public involvement opportunities*
- *Provide update on next phase of MLPA Initiative process (MLPA South Coast Study Region)*

Meeting Agenda

1. Welcome, roll call, and objectives for the conference call
2. Introductions
3. Status report on MLPA Initiative process; scan recent and upcoming meetings
 - North Central Coast Regional Stakeholder Group: December 11-12, 2007
 - Master Plan Science Advisory Team: January 8, 2008 and January 23, 2008
 - Blue Ribbon Task Force: February 13-14, 2008 (first day with California Fish and Game Commission)
4. Discuss planned February 4-6, 2008 public workshops
 - Outline objectives and intended role of regional stakeholder group and members of the public (refer to agenda, Attachment 1)
 - Review dates/locations
5. Provide brief update on next phase of MLPA Initiative process (South Coast Study Region)
6. Recap and next steps
 - Plan next SIG meeting

Attachments

1. Draft provisional agenda for February 4-6, 2008 public workshops

Key Outcomes Memorandum

Date: January 23, 2008

To: Members, MLPA Statewide Interests Group (SIG)

From: Scott McCreary and Eric Poncelet, CONCUR, Inc.

Re: Key Outcomes Memorandum – January 17, 2008 SIG Meeting

cc: BRTF members, MLPA Initiative Staff, and California Department of Fish and Game MLPA Staff

Participation and Materials

The following Marine Life Protection Act (MLPA) Initiative Statewide Interests Group (SIG) members participated in the January 17, 2008 conference call: Kevin Cooper, Harold Davis, Kaitilin Gaffney, Joe Geever, Joel Greenberg, Angela Haren, Bill James, Ken Kurtis, James Liu, Tom Raftican, Steve Scheiblaue, Shelly Walther, and Kate Wing.

Chair Susan Golding, Don Benninghoven, and Cathy Reheis-Boyd participated as members of the MLPA Blue Ribbon Task Force (BRTF).

Ken Wiseman, Melissa Miller-Henson, and Darci Connor (MLPA Initiative), and Susan Ashcraft, Jason Vasquez, Rebecca Studebaker, and Lynn Takata (California Department of Fish and Game, DFG) participated on behalf of MLPA Initiative staff (collectively known as "I-Team"). Scott McCreary and Eric Poncelet (CONCUR, Inc.) facilitated the conference call.

Meeting materials may be found on the MLPA website at:
http://www.dfg.ca.gov/mlpa/meeting_011708.asp

Key Outcomes

SIG members received a status report on recent meetings in the MLPA Initiative process and offered suggestions for upcoming meetings. I-Team staff described key outcomes from the December 11-12, 2007 North Central Coast Regional Stakeholder Group (NCCRSG) meeting and the January 8, 2008 MLPA Science Advisory Team (SAT) meeting. Participants also discussed key objectives for the upcoming January 23, 2008 SAT and February 13-14, 2008 meetings.

SIG members offered comments on the MLPA process. Key comments included the following:

SAT

- SIG members expressed an interest in seeing further model refinement. They further requested that stakeholders be given the opportunity to discuss the applicability of the new models with SAT members.

- I- team staff noted that the models are still very much in the formative stages and that their role and use will be determined by SAT recommendations to the BRTF and the California Fish and Game Commission and any decisions made by the BRTF and the California Fish and Game Commission as to the future value of the models.
- SIG members asked for more information on the current methodology underlying the current SAT size and spacing guidelines. I-Team staff committed to provide a key report to SIG members that references supporting studies and research.
- SIG members noted that the transmission of the January 8, 2008 SAT meeting webcast was interrupted several times. I-Team staff acknowledged that the location of the meeting (SFO airport) was a key source of the problem, and that staff was addressing this by scheduling future SAT meetings at alternative sites. The January 23, 2008 SAT meeting will take place in Pacifica, CA.

BRTF/NCCRS

- SIG members requested further clarity from the BRTF regarding how the BRTF will determine what constitutes “enough protection” to meet the goals of the MLPA. BRTF members underscored their obligation to implement the MPLA. As well, BRTF members and I-Team staff clarified that the goals include terms like “protect”, “preserve,” and “sustain” that are open to some interpretation. As such, the BRTF will have to determine for itself, through deliberation, how much protection will be enough to achieve the goals of the Act. BRTF members and I-Team staff further clarified that while the MLPA does not include specific scientific guidelines, the BRTF intends to adopt scientific guidelines based on input from the SAT.
- SIG members emphasized that the monitoring and evaluation program is especially important as a way of ensuring that the initial array of MPAs adopted are indeed achieving the goals of the Act.
- SIG members expressed strong support for convergence within the NCCRS and recommended that the BRFT take steps at its next meeting to encourage convergence around a single MPA array. Chair Golding confirmed that the BRTF also prefers that the NCCRS converge as much as possible.

SIG members expressed an interest in learning more about the monitoring and evaluation process. As part of their discussion of the recent and upcoming SAT meetings, SIG members offered the following comments:

- SIG members expressed interest in learning more about how the SAT’s models would be used in monitoring and evaluation.
- SIG members posed technical questions on how the effectiveness of MPAs, as part of the adaptive management process, would be tested. For example, one SIG member asked how the “rate of production” (of fish ‘exported’ from MPAs) would be measured. I-Team staff noted that the SAT had discussed this issue at the January 8, 2008 SAT meeting. Staff invited interested SIG members to review the video archive or to direct specific questions to some of the key developers of the new models, including Loo Botsford and Chris Costello. I-Team staff also pointed out that the MLPA monitoring and evaluation program is based on a variety of approaches and methods, including surveys, fish counts, and changes in fish landings.
- I-Team staff acknowledged the SIG’s interest in monitoring and evaluation issues and committed to agendize the topic for the next SIG meeting.

- I-Team staff invited SIG members to attend the California Islands Symposium scheduled for February 5-7, 2008 in Oxnard, CA. Monitoring and research will be a key focus of the symposium. For more information on the symposium, go to:
<http://www.californiaislands.org/>

SIG members reviewed, provided comment on, and expressed support for the draft agenda for the February 4-6, 2008 public workshops.

Key comments included the following:

- SIG members suggested that staff include in its overview of the current MLPA process a description of the SAT evaluation guidelines. This will help inform public comments on the individual draft MPA proposals.
- SIG members strongly supported using a breakout group format to solicit input on the current iteration of draft MPA proposals. SIG members further supported organizing the breakout groups by sub-regions rather than by MPA proposals, as this will provide greater opportunities for members of the public to comment on more than one proposal.
- SIG members recommended that I-Team staff direct part of their outreach efforts toward members of the public who have not been following the MLPA Initiative process.
- I-Team staff noted that the public workshops would not be webcast, due to the breakout session format and the significant costs involved.
- I-Team staff described the outreach strategy for the public workshops. Key steps include the following:
 - Finalize the public workshop agenda, incorporating SIG comments.
 - Send an announcement for the public workshops to the list server (and print copy list), and post the agenda on the MLPA website.
 - Ask NCCRSG and SIG members to forward copies of the announcement and agenda to their respective constituent groups.
 - Conduct outreach through the local media.

SIG members received an update on initial planning for the South Coast Study Region and provided advice to guide the planning process. Key comments and advice included:

- Socio-economic data needs to be collected earlier in the planning process than it was for the Central Coast or North Central Coast processes. Additionally, I-Team staff should make as much of this information as possible available to the public (this includes exploring ways to disaggregate socioeconomic data in a manner that does not undermine confidentiality). SIG members also acknowledged that some of this information may not be available due to confidentiality agreements.
- I-Team staff described its intent to take the budget for the South Coast Study Region to the BRTF for approval at the BRTF's February 13-14, 2008 meeting.
- I-Team staff noted that the timeline for completing the South Coast Study Region is expected to be approximately 18 months.
- I-Team staff confirmed that the Initiative is working with DFG staff to find ways to address next year's expected budget shortfall. This may include efforts to shift some North Central Coast funding to the South Coast.

Next SIG Meeting – Monday, February 25, 2008 (2:00 – 4:00 PM)

The next SIG meeting was scheduled for Monday, February 25, 2008 from 2:00 – 4:00 PM.

Suggested agenda items for the meeting include:

- Provide a report on the outcomes of key MLPA Initiative meetings, including upcoming SAT (January 23, 2008), BRTF (February 13-14, 2008), and NCCRSG (February 21, 2008) meetings, as well as the February 4-6, 2008 public workshops. This should include an update on the results of the SAT's evaluation of draft MPA proposals and the status of SAT modeling efforts.
- Provide an update on planning for the South Coast Study Region, including a report on the budget and details for the anticipated timeline.
- Provide a summary of the outcomes of the February 5-7, 2008 California Islands Symposium.
- Continue discussions on MPA monitoring and evaluation approach and methods.

Summary of Next Steps

1. I-Team staff to finalize the agenda for the February 4-6, 2008 public workshops and transmit it, along with the invitation email, to the MLPA Initiative list serve (and print copy list). SIG members are invited to forward the invitation and agenda to their respective constituent groups.
2. I-Team staff to provide SIG members with NCCRSG contact information.
3. I-Team staff to provide SIG members with a copy of the report containing literature citations supporting the SAT's size and spacing guidelines.
4. I-Team staff to forward to SIG members information on the February 5-7, 2008 California Islands Symposium.
5. I-Team staff to prepare for the next SIG meeting on February 25, 2008 (2:00-4:00 PM)

California Marine Life Protection Act Initiative
Statewide Interests Group
Draft Meeting Agenda
(revised February 20, 2008)

Monday, February 25, 2008
2:00 – 4:00 p.m.

Via conference call

Meeting Objectives

- *Provide status report on recent Marine Life Protection Act (MLPA) Initiative meetings*
- *Provide an update on planning for the MLPA South Coast Study Region*
- *Provide a summary of the outcomes of the February 7-8, 2008 Channel Islands Marine Reserves Symposium*
- *Provide overview of MPA monitoring and evaluation approach and methods*

Meeting Agenda

1. Welcome, roll call, and review objectives for the conference call
2. Provide status report on MLPA Initiative process -- recent and upcoming meetings
 - a. Master Plan Science Advisory Team: January 23, 2008; April 3, 2008 (Attachment 1)
 - b. Blue Ribbon Task Force: February 13-14, 2008; April 22-23, 2008 (Attachments 2, 3)
 - i. Recap guidance to the North Central Coast Regional Stakeholder Group (NCCRSG)
 - ii. Review other BRTF actions
 - c. Public workshops: February 4-6, 2008 (Attachment 4)
 - d. NCCRSG: February 21, 2008, March 4, 2008 (work session), March 18-19, 2008
3. Provide brief update on planning for the South Coast Study Region
4. Provide summary of major outcomes of Channel Islands Marine Reserves Symposium (February 7-8, 2008)
5. Provide overview of MPA monitoring and evaluation approach and methods
6. Recap and next steps (Attachment 5)

Attachments

1. *Methods Used to Evaluate Draft MPA Proposals in the North Central Coast Study Region* (February 1, 2008 revised draft)
2. *Summary of MLPA Blue Ribbon Task Force Guidance to the North Central Coast Regional Stakeholder Group, February 14, 2008 BRTF meeting* (prepared February 20, 2008)
3. *California MLPA North Central Coast Project, North Central Coast Regional Goals and Objectives* (as adopted by the MLPA Blue Ribbon Task Force on February 14, 2008)
4. Summary of key themes from February 4, 5 and 6 public workshops
5. *California Marine Life Protection Act Initiative North Central Coast Regional Planning Timeline* (revised February 6, 2008)

Key Outcomes Memorandum

Date: March 21, 2008

To: Members, MLPA Statewide Interests Group (SIG)

From: Scott McCreary and Eric Poncelet, CONCUR, Inc.

Re: Key Outcomes Memorandum – February 25, 2008 SIG Meeting

cc: BRTF members, MLPA Initiative Staff, and California Department of Fish and Game MLPA Staff

Participation and Materials

The following Marine Life Protection Act (MLPA) Initiative Statewide Interests Group (SIG) members participated in the February 25, 2008 conference call: Kevin Cooper, Henry Fastenau, Kaitilin Gaffney, Joe Geever, Joel Greenberg, Angela Haren, Bill James, Ken Kurtis, James Liu, Tom Raftican, Steve Scheiblauber, Shelly Walther, and Kate Wing.

Chair Susan Golding, Don Benninghoven, and Cathy Reheis-Boyd participated as members of the MLPA Blue Ribbon Task Force (BRTF).

Ken Wiseman and Melissa Miller-Henson (MLPA Initiative), and John Ugoretz, Susan Ashcraft, Rebecca Studebaker, Elizabeth Pope-Smith and Brian Naslund (California Department of Fish and Game, DFG) participated on behalf of MLPA Initiative staff (collectively known as “I-Team”). Tony Warrington and Doug Huckins participated on behalf of DFG enforcement staff. Scott McCreary and Eric Poncelet (CONCUR, Inc.) facilitated the conference call.

Meeting materials may be found on the MLPA website at:
http://www.dfg.ca.gov/mlpa/meeting_022508.asp

Key Outcomes

I-Team staff summarized and clarified recent MLPA Master Plan Science Advisory Team (SAT) and BRTF guidance to the MLPA North Central Coast Regional Stakeholder Group (NCCRSG). See meeting materials for details on the SAT evaluation methods and BRTF guidance.

Key clarifying comments included the following:

- BRTF Chair Susan Golding clarified that this guidance is based on best available information but is not being imposed on the NCCRSG as “rules”. NCCRSG members have been asked to clearly explain any cases in which they choose to deviate from the stated science guidelines, DFG feasibility criteria or BRTF guidance.

- I-Team staff clarified that the size and spacing guidance was developed in the central coast MLPA process and was peer reviewed through an effort convened by the California Sea Grant Program.
- I-Team staff clarified that modeling may play a greater role in the MLPA South Coast Study Region, both in MPA planning and evaluation.

SIG members offered advice regarding the I-Team's use of "straw voting" to assist the NCCRSG in reducing the number of platforms for building final NCCRSG MPA proposals. In particular, SIG members recommended that straw voting be used selectively in the NCCRSG process, that alternative tools also be considered for reducing the number of proposals, and that staff provide greater advanced notice for any future straw voting.

DFG enforcement staff provided SIG members with an update on enforcement in the MLPA Central Coast Study Region. DFG enforcement staff, Captain Doug Huckins, described recent outreach, education and enforcement actions. SIG members offered the following comments:

- SIG members Kate Wing and Vern Goerhing announced that they have been working on the issue of strengthening DFG enforcement funding. They invited other SIG members to contact them if interested to work on this issue.
- SIG members recommended that outreach materials be kept clear and simple.
- For further questions on DFG enforcement issues, SIG members are invited to contact Captain Brian Naslund at bnaslund@dfg.ca.gov.

I-Team staff summarized the outcomes of the February 4-6, 2008 public workshops. Staff noted that over 300 individuals attended the workshops and submitted 135 comment sheets for the NCCRSG's consideration.

SIG members received an update on ongoing planning for the MLPA South Coast Study Region and provided advice to guide the planning process. I-Team staff informed SIG members that the BRTF has approved funding for socioeconomic research and that staff have begun compiling a draft regional profile. It is anticipated that nominations for the MLPA South Coast Regional Stakeholder Group and the new BRTF will be solicited this summer. It is also anticipated that both will be convened in the fall. The current SAT will stay available until a new SAT containing additional south coast expertise is convened. Key SIG comments included:

- SIG members commented that the south coast is distinct from the other study regions in several respects—e.g., it is very large in area, it is characterized by densely populated coastal areas, and travel from one part of the study region to another can be onerous (i.e., for traffic reasons). I-Team staff agreed to agendize discussion of these and other south coast logistical issues at the next SIG meeting.
- SIG members asked to be provided with contact information for the MLPA South Coast Regional Stakeholder Group once the group is convened and that the same information be provided on the project website early in the process so that the public can communicate with the members.

SIG members offered guidance for disseminating monitoring and evaluation results. I-Team staff noted plans to present results from the recent California Islands Symposium (February 7-8, 2008) to both the California Fish and Game Commission and the general public.

SIG members offered several suggestions for making the symposium proceedings more user-friendly:

- A document tailored to the California Fish and Game Commission as an audience will be largely accessible to the general public.
- Include contact information detailing how stakeholders can participate in collaborative research projects (including contact information for key coordinators).
- Place large maps or charts on two pages.

John Ugoretz (DFG) will provide SIG members with a mock-up of the draft symposium proceedings for review.

Next SIG Meeting – Thursday, May 1, 2008 (2:30 – 4:30 PM) [**Note that this date has changed from the original April 30 date discussed on the call*]

The next SIG meeting was scheduled for Monday, May 1, 2008 from 2:30 – 4:30 PM.

Suggested agenda items for the meeting include:

- Discuss the outcomes of SAT and BRTF evaluation of the final round of MPA proposals.
- Discuss how to more effectively include issues of monitoring and evaluation earlier in the MPA design process.
- Provide a status update on planning for the MLPA South Coast Study Region, including a report on the budget and details for the anticipated timeline.

Summary of Next Steps

1. I-Team staff to prepare for March 4, 2008 NCCRSG work session and design steps to reduce the number of platforms for the final iteration of MPA proposals.
2. John Ugoretz to forward to the SIG a mock-up of the draft proceedings for the February 7-8, 2008 California Islands Symposium for review.
3. I-Team staff to prepare for the next SIG meeting on May 1, 2008 (2:30-4:30 PM).

**California Marine Life Protection Act Initiative
Statewide Interests Group (SIG)
Draft Meeting Agenda**

***Thursday, May 1, 2008
2:30 – 4:30 p.m.***

Via conference call

Meeting Objectives

- *Discuss outcomes of the April 22-23, 2008 MLPA Blue Ribbon Task Force (BRTF) meeting*
- *Provide an update on the MLPA South Coast Project, including a report on initial outreach and the anticipated timeline*

Meeting Agenda

1. Welcome, roll call, and review objectives for the conference call
2. Discuss outcomes of recent BRTF (April 22-23, 2008) meeting (Attachments 1-2)
 - a. Summarize key BRTF motions
 - b. Discuss and reflect on lessons learned and potential implications for:
 - i. Upcoming joint California Fish and Game Commission/BRTF meeting
 - ii. MLPA South Coast Study Region
 - Timeline and sequence
 - Nature of stakeholder involvement and participation
3. Provide brief update on planning for the South Coast Study Region, including a report on the budget and initial details for anticipated timeline
 - a. Report on upcoming (May 15, 16, 19 and 20) MLPA Initiative/ECOTRUST outreach meetings with recreational and commercial fishing interests
 - b. Discuss requests from individual south coast stakeholder groups for I-Team presentations within context of proposed stakeholder outreach approach
4. Recap and next steps

Attachments

1. Summary of BRTF motions adopted at its April 22-23, 2008 meeting
2. Maps and description of BRTF integrated preferred alternative

DRAFT Key Outcomes Memorandum

Date: May 19, 2008

To: Members, MLPA Statewide Interests Group (SIG)

From: Scott McCreary and Eric Poncelet, CONCUR, Inc.

Re: Key Outcomes Memorandum – May 1, 2008 SIG Meeting

cc: BRTF members, MLPA Initiative Staff, and California Department of Fish and Game MLPA Staff

Participation and Materials

The following Marine Life Protection Act (MLPA) Initiative Statewide Interests Group (SIG) members participated in the May 1, 2008 conference call: Kevin Cooper, Harold Davis, Kaitilin Gaffney, Joe Geever, Vern Goerhing, Joel Greenberg, Angela Haren, Bill James, Ken Kurtis, James Liu, Tom Raftican, Roger Thomas, and Shelly Walther.

Ken Wiseman and Melissa Miller-Henson (MLPA Initiative), and John Ugoretz, Rebecca Studebaker, Elizabeth Pope-Smith, and Matt Erickson (California Department of Fish and Game, DFG) participated on behalf of MLPA Initiative staff (collectively known as “I-Team”). Scott McCreary and Eric Poncelet (CONCUR, Inc.) facilitated the conference call.

SIG meeting materials may be found on the MLPA website at <http://www.dfg.ca.gov/mlpa/meetings.asp>.

Key Outcomes

SIG members discussed the outcomes of the April 22-23, 2008 BRTF meeting and expressed general support for the process and motions adopted.

Key SIG comments included the following:

- The integrated preferred alternative selected by the MLPA Blue Ribbon Task Force (BRTF) appears to strike a good balance between the different stakeholder interests. The preferred alternative integrates elements of all three of the MLPA North Central Coast Regional Stakeholder Group (NCCRSG) marine protected area (MPA) proposals. Based on both testimony at the BRTF meeting and later feedback, it appears that most stakeholders can live with the integrated preferred alternative.
- The process benefited from significant opportunities that the BRTF had to discuss the NCCRSG MPA proposals with the NCCRSG members themselves. It was important for NCCRSG members to have the opportunity to explain the details and logic of their proposals and the tradeoffs they made in crafting their proposals.
- In general, the BRTF did a good job of listening to stakeholders and the public.

- SIG members expressed strong support for the BRTF's motion to forward all three NCCRSG MPA proposals to the California Fish and Game Commission (F&GC) for consideration.
- SIG members viewed the overall north central coast process as more successful than the central coast process from the standpoint of effective engagement of the regional stakeholder group, the early mobilization of technical information, and the joint NCCRSG/BRTF deliberations.

SIG members offered guidance regarding preparations for the upcoming BRTF/F&GC meeting. Key guidance included the following:

- The integrated preferred alternative contains several state marine reserves in the northern part of the study region. These reserves may have significant socioeconomic impacts on smaller local communities such as Point Arena and Gualala. The BRTF/F&GC meeting should expect significant involvement from constituents from the northern part of the study region.

SIG members offered guidance regarding potential implications of the BRTF's decision for the MLPA South Coast Study Region. Key guidance included the following:

- The MLPA South Coast Study Region (SCSR) includes locations where the issue of special closures may arise (e.g., Children's Pool in La Jolla). I-Team staff confirmed that the SCSR includes several existing special closures. DFG staff confirmed that they expect to ask the MLPA South Coast Regional Stakeholder Group to review any existing special closures.
- Several SIG members expressed concern regarding the timing and nature of peer agency involvement before the final BRTF deliberations. SIG members advised that the roles, responsibilities, and method of engagement of state and federal agencies needs to be clearly identified at the outset of the MLPA South Coast Regional Stakeholder Group process.

I-Team staff provided SIG members with an update on planning for the SCSR. Key updates include the following:

- I-Team staff and consultants have already started work on key information gathering efforts that are expected to have a long lead-time. These include mapping, development of the regional profile, and socioeconomic research.
- Ecotrust socioeconomic data collection outreach workshops are set to take place on May 15-16 and 19-20, 2008. The purpose of the workshops is to begin scheduling interviews for the socioeconomic research in the SCSR. Ecotrust is scheduled to conduct three outreach workshops with commercial fishing interests (San Diego, San Pedro, and Santa Barbara), and three with recreational fishing interests (La Jolla, San Pedro, Oxnard). I-Team staff will provide some support for these workshops, but the focus is on the Ecotrust research rather than on the MLPA process.
- Formal MLPA public outreach workshops are scheduled to commence in June 2008. The current plan is to conduct a first round of outreach meetings in about mid-June, followed by targeted round-table meetings with invited stakeholders, and followed again by a second round of public workshops in the July timeframe. The public outreach workshops will take place at locations throughout the SCSR.

- The regional stakeholder group will first be convened in the September/October timeframe. The stakeholder group nomination process will begin after completion of the public outreach workshops.
- A new methodology will be used to collect data on non-consumptive uses in the SCSR. This research will again be conducted by the National MPA Center and the Marine Conservation Biology Institute.
- DFG is adding five staff members to the MLPA planning process for the SCSR.

SIG members offered guidance regarding how best to proceed with outreach to the South Coast Study Region. Key guidance included the following:

- Much of the public in southern California is currently not well informed about the aims or steps in the MLPA process. Significant outreach is needed to address both the MLPA process and the socioeconomic research being conducted. Some fishermen will be concerned about how the socioeconomic research may be used against them.
- Take steps to ensure that Ecotrust is also reaching out to consumptive divers.

Next Steps

1. Participants agreed that scheduling of the next SIG meeting should wait until after the F&GC begins to engage the BRTF's recommendations. The next SIG meeting could take place in late summer.
2. I-Team staff to transmit to SIG members sample invitations to the Ecotrust workshops.